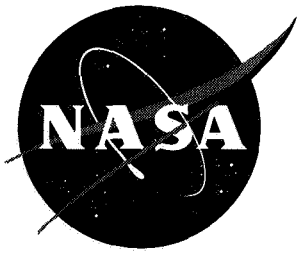

NASA Technical Memorandum 108487

The Spacelab Scientific Missions: A Comprehensive Bibliography of Scientific Publications

Compiled by
Dr. Marsha Torr

April 1995

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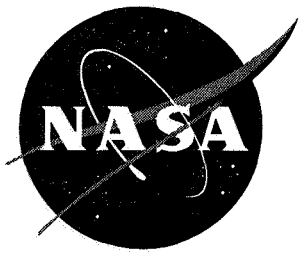

The Spacelab Scientific Missions: A Comprehensive Bibliography of Scientific Publications

Compiled by
Dr Marsha Torr
Marshall Space Flight Center • MSFC, Alabama

National Aeronautics and Space Administration
Marshall Space Flight Center • MSFC, Alabama 35812

April 1995

FOREWORD

November 1993 represented the 10-year anniversary of the flight of the Spacelab 1 mission, with the first precursor mission (OSTA-1) being launched 2 years earlier. Since that time, a total of 27 Shuttle missions has been flown, using the Spacelab system as a facility for conducting scientific research in space. The 27 missions flown to date have allowed a total of approximately 500 Principal Investigator class investigations to be conducted in orbit. These investigations have constituted major scientific efforts in astronomy/astrophysics, atmospheric science, Earth observations, life sciences, microgravity science (biotechnology, materials science, combustion science, and fluid dynamics), and space plasma physics.

The Spacelab program represents one of the longest in duration, the most multi-disciplinary, and the most international of the space science programs conducted to date. Furthermore, eight more missions will be flown over the next few years. We have conducted an initial survey of the scientific products of the Spacelab missions already flown. In that survey, information was gathered from Principal Investigators on the scientific highlights of their investigations and on statistical measures of the overall success--such as papers published, students obtaining graduate degrees, technology spin-offs, etc.

This document is a compilation of the papers that have been published to date in refereed literature. As of November 1994, the number of papers by broad scientific discipline is as follows:

Astronomy/Astrophysics	145
Atmospheric Science	119
Earth Observations	67
Life Sciences	521
Microgravity Science	227
Space Plasma Physics	117
TOTAL	1196

We expect these numbers to grow significantly as several major missions have flown recently, and the scientists have not yet had time to analyze and publish their results. This document will be updated as appropriate to incorporate additional publications.

Marsha R. Torr
Chief Scientist
Payloads Projects Office, JA01
Marshall Space Flight Center
Huntsville, Alabama 35812

March 1995

Organizational Note

The bibliographic entries in this publication are first sorted according to date of publication, then alphabetically by first author's last name and title of work. The entry template order is as follows: author name(s), title of work, journal source, date of publication, and associated mission(s).

The Spacelab Scientific Missions:

A Comprehensive Bibliography of Scientific Publications

Table of Contents

ASTRONOMY AND ASTROPHYSICS

Willmore, A.P., Skinner, G.K., Eyles, C.J., and Ramsey, B.
A pseudo random mask telescope for Spacelab
Space Sci. Rev., 30, 601-605
1981
Spacelab 2

Koch, D., Fazio, G.G., Traub, W.A., Rieke, G.H., Gautier, T.N., Hoffmann, W.F., Low, F.J., Poteet, W., Young, E.T., Urban, E.W., and Katz, L.
The infrared telescope on Spacelab 2
Optical Eng., 21, 141-147
1982
Spacelab 2

Swordy, S.P., L'Heureux, J., Müller, D., and Meyer, P.
Measurements of X-ray transition radiation from plastic fibers
Nucl. Instr. and Meth. in Phys. Res., 193, 591-596
1982
Spacelab 2

Beaujean, R., Schmidt, M., Enge, W., Siegmon, G., Krause, J., and Fischer, E.
Isotopic stack: Measurement of heavy cosmic rays
Science, 225, 193-195
1984
Spacelab 1

Biswas, S., Durgaprasad, N., Kajarekar, P.J., Vahia, M.N., Yadav, J.S., Basu, C., Goswami, J.N., Kukreja, L.M., and Bhawalkar, D.D.
ADC (CR-39) detector module for Space Shuttle Spacelab-3 Cosmic Ray Experiment
Nucl. Tracks and Radiat. Meas., 8(1-4), 559-562
1984
Spacelab 3

Bixler, J., Bowyer, S., Deharveng, J.M., Courtes, G., Malina, R., Martin, C., and Lampton, M.
Astronomical observations with the FAUST telescope
Science, 225, 184-185
1984
Spacelab 1

Courtès, G., Viton, M., Sivan, J.P., Decher, R., and Gary, A.
Very wide field ultraviolet sky survey
Science, 225, 179
1984
Spacelab 1

Kukreja, L.M., Bhawalkar, D.D., Biswas, S., Durgaprasad, N., Kajarekar, P.J., Vahia, M.N., Yadav, J.S., Basu, C., and Goswami, J.N.
Cutting thin sheets of allyl diglycol carbonate (CR-39) with a CW CO_2 laser: Instrumentation and parametric investigation
Nucl. Instr. and Meth. in Phys. Res., 219, 196-198
1984
Spacelab 3

McDonnell, J.A.M., Carey, W.C., and Dixon, D.G.
Cosmic dust collection by the capture cell technique on the Space Shuttle
Nature, 309 (5965), 237-240
1984
OSS-1

Trameil, L.J., Chanan, G.A., and Novick, R.
Polarization evidence for the isotropy of electrons responsible for the production of 5 - 20 keV X-rays in solar flares
Astrophysical J., 280, 440-447
1984
OSS-1

Willmore, A.P., Skinner, G.K., Eyles, C.J., and Ramsey, B.
A coded mask telescope for the Spacelab 2 mission
Nucl. Instr. and Meth. in Phys. Res., 221, 284-287
1984
Spacelab 2

Viton, M., Courtès, G., Sivan, J.P., Decher, R., and Gary, A.
Preliminary results on the various UV straylight sources for the VWFC aboard SL-1
Earth-Orient. Appl. Space Technol., 5(1/2), 111
1985
Spacelab 1

Viton, M., Sivan, J.P., Courtès, G., Gary, A., and Decher, R.
Evidence of a hot population in the SMC/LMC bridge detected by VWFC of SL-1
Adv. Space Res., 5, 207
1985
Spacelab 1

Biswas, S.
Quest for cosmic ray origin: Anuradha experiment in Spacelab 3
Proc. Ind. National Sci. Acad., 52, 1334-1348.
1986
Spacelab 3

Biswas, S., Chakraborty, R., Cowsik, R., Durgaprasad, N., Kajarekar, P.J., Singh, R.K., Vahia, M.N., Yadav, J.S., Goswami, J.N., Lal, D., Mazumdar, H.S., Subhedar, D.V., and Padmanabhan, M.K.
Indian Cosmic Ray Experiment ions (ANURADHA) in Space Shuttle Spacelab-3 using CR-39 detectors
Int. J. Radiat. Appl. Instrum., Part D, Nuclear Tracks, 12(1-6), 411-413
1986
Spacelab 3

Biswas, S., Chakraborty, R., Cowsik, R., Durgaprasad, N., Kajarekar, P.J., Singh, R.K., Vahia, M.N., Yadav, J.S., Dutta, N., Goswami, J.N., Lal, D., Mazumdar, H.S., Subhedar, D.V., and Padmanabhan, M.K.
Ionization states of cosmic rays: Anuradha (IONS) experiment in Spacelab-3
Pramana - J. Phys., 27(1&2), 89-104
1986
Spacelab 3

Krause, J., Beaujean, R., Fischer, E., and Enge, W.
CR-39 used for cosmic ray measurements aboard Spacelab-1
Int. J. Radiat. Appl. Instrum., Part D, Nuclear Tracks, 12(1-6), 412-422
1986
Spacelab 1

Oschlies, K., Beaujean, R., and Enge, W.
Measurement of low energy cosmic rays aboard Spacelab-1
Int. J. Radiat. Appl. Instrum., Part D, Nuclear Tracks, 12(1-6), 407-409
1986
Spacelab 1

Pierre, M., Viton, M., Sivan, J.P., and Courtès, G.
Star formation in the wing of the SMC
Astron. and Astrophys., 154, 249
1986
Spacelab 1

Eyles, C.J., Skinner, G.K., Willmore, A.P., Bertram, D., Harper, P.K.S., Herring, J.R.H., and Ponman, T.J.
The Spacelab 2 coded mask X-ray telescope
J. Br. Interplanetary Soc., 40(4), 159-162.
1987
Spacelab 2

Koch, D.G., Fazio, G.G., Hoffmann, W.F., Melnick, G., Rieke, G., Simpson, J., Witteborn, F., and Young, E.
Infrared observation of contaminants from Shuttle flight 51-F
Adv. Space Res., 7(5), 211
1987
Spacelab 2

Siegmund, O.H.W., Lampton, M., Bixler, J., Vallerga, J., and Bowyer, S.
High efficiency photon counting detectors for the FAUST Spacelab FUV payload
IEEE Trans. Nuc. Sci., NS-34, 41-45
1987
Spacelab 1

Skinner, G.K., Eyles, C.J., Willmore, A.P., Bertram, D., Church, M.J., Harper, P.K.S., Herring, J.R.H., Peden, J.C.M., Pollock, A.M.T., Ponman, T.J., and Watt, M.P.
X-ray observations from the Space Shuttle
Adv. Space Res., 7(5), 223-230
1987
Spacelab 2

Skinner, G.K., Willmore, A.P., Eyles, C.J., Bertram, D., Church, M.J., Harper, P.K.S., Herring, J.R.H., Peden, J.C.M., Pollock, A.M.T., Ponman, T.J., and Watt, M.P.
Hard X-ray images of the galactic centre
Nature, 330(6148), 544-547
1987
Spacelab 2

Biswas, S., Durgaprasad, N., Mitra, B., Singh, R.K., Vahia, M.N., Yadav, J.S., Dutta, A., and Goswami, J.N.
The ionization state of oxygen ions in anomalous cosmic rays: Results from the Anuradha experiment in Spacelab-3
Astrophys. and Space Sci., 149, 357-367
1988
Spacelab 3

Deleuil, M., and Viton, M.
The performance of the instrument as a means of identifying stars with peculiar properties
Astron. and Astrophys., 205, 147
1988
Spacelab 1

Glendar, D.A., Reuter, D.C., Deming, D., and Chang, E.S.
MgI absorption features in the solar spectrum near 9 and 12 microns
Astrophysical J., 335, L35-L38
1988
Spacelab 3

Grunsfeld, J., L'Heureux, J., Meyer, P., Müller, D., and Swordy, S.P.
Energy spectra of cosmic ray nuclei from 50 to 2000 GeV per amu
Astrophysical J. Lett., 327, L31
1988
Spacelab 2

Koch, D.G., Melnick, G.J., Fazio, G.G., Rieke, G.H., Low, F.J., Hoffmann, W., Young, E.T., Urban, E.W., Simpson, J.P., Witteborn, F.C., Gautier, T.N., III, and Poteet, W.
Overview of measurements from the Infrared Telescope on Spacelab-2
Astro. Lett. and Comm., 27, 211
1988
Spacelab 2

Skinner, G.K., Eyles, C.J., Willmore, A.P., Bertram, D., Church, M.J., Herring, J.R.H., Ponman, J., and Watt, M.P.
The Spacelab 2 X-ray telescope: Coded mask imaging in orbit
Astro. Lett. and Comm., 27, 199-209
1988
Spacelab 2

Skinner, G.K., Harper, P.K.S., Herring, J.R.H., and Ramsey, B.D.
The Spacelab 2 XRT xenon-filled position-sensitive proportional counters
Nucl. Instr. and Meth. in Phys. Res., A273, 682-688
1988
Spacelab 2

Viton, M., Burgarella, D., Cassatella, A., and Prévot, L.
Analysis of 7 stars of various nature
Astron. and Astrophys., 205, 147
1988
Spacelab 1

Biswas, S.
Anuradha - the Indian experiment in space
In *Encyclopedia Asia*
1989
Spacelab 3

Biswas, S.
Ionization states of the anomalous cosmic rays
Adv. Space Res., 9(12), 9-13
1989
Spacelab 3

Biswas, S., Durgaprasad, N., Mitra, B., Singh, R.K., Vahia, M.N., Dutta, A., and Goswami, J.N.
Observation of enhanced sub-iron (Sc-Cr) to iron ratio in low energy cosmic rays of 50-100 MeV/N in Spacelab-3
Adv. Space Res., 9(12), 25-28
1989
Spacelab 3

Hanson, C.G., Skinner, G.K., Eyles, C.J., and Willmore, A.P.
Coded mask X-ray images of the Large Magellanic Cloud: Hard X-ray emission from EXO 053109-6609.2
Mon. Not. R. Astr. Soc., 240, 1-6
1989
Spacelab 2

Hanson, C.G., Skinner, G.K., Eyles, C.J., and Willmore, A.P.
Coded mask X-ray images of the Virgo cluster: 1. Hard X-rays from the Seyfert galaxy NGC 4388
Mon. Not. R. Astr. Soc., 242, 262-266
1989
Spacelab 2

Mellen, F., Grevesse, N., Sauval, A.J., Farmer, C.B., Norton, R.H., Bredohl, H., and Dubois, I.
A new analysis of the vibration-rotation spectrum of CH from solar spectra
J. Mol. Spectrosc., 134, 305-313
1989
Spacelab 3

Mitra, B., Biswas, S., Durgaprasad, N., Singh, R.K., Vahia, M.N., Dutta, A., and Goswami, J.N.
Studies of anomalous cosmic ray oxygen ions in space and their ionization states in Anuradha experiment in Spacelab-3
Adv. Space Res., 9(12), 17-20
1989
Spacelab 3

Oschlies, K., Beaujean, R., and Enge, W.
On the charge state of anomalous oxygen
Astrophysical J., 345, 776-781
1989
Spacelab 1

Skinner, G.K.
X-ray observations of the galactic centre
In *The Center of the Galaxy*, ed. M. Morris, IAU, 567-580
1989
Spacelab 2

Biswas, S., Durgaprasad, N., Mitra, B., Singh, R.K., Dutta, A., and Goswami, J.N.
Observation of low-energy (30-100 MeV/nucleon-1) partially ionized heavy ions in galactic cosmic rays
Astrophysical J., 359, L5-L9
1990
Spacelab 3

Durgaprasad, N., Biswas, S., Mitra, B., Singh, R.K., Vahia, M.N., Dutta, A., and Goswami, J.N.
Cosmic ray propagation studies from sub-iron and iron abundances in Spacelab-3 Anuradha experiment
Indian J. Phys., 64A(3), 175-181
1990
Spacelab 3

Grevesse, N., Lambert, D.L., Sauval, A.J., van Dishoeck, E.F., Farmer, C.B., and Norton, R.H.
Identification of solar vibration-rotation lines of NH and the solar nitrogen abundance
Astron. and Astrophys., 232, 225-230
1990
Spacelab 3

L'Heureux, J., Meyer, P., Müller, D., and Swordy, S.P.
An instrument to measure the composition of cosmic ray nuclei from boron to iron at energies from 50 GeV/amu to several TeV/amu
Nucl. Instr. and Meth. in Phys. Res., A295, 246
1990
Spacelab 2

Mitra, B., Biswas, S., Singh, R.K., Vahia, M.N., Dutta, A., and Goswami, J.N.
Ionization states of anomalous cosmic ray nitrogen to neon ions in Spacelab-3 Anuradha experiment
Indian J. Phys., 64A(3), 201-206
1990
Spacelab 3

Ponman, T.J., Bertram, D., Church, M.J., Eyles, C.J., Watt, M.P., Skinner, G.K., and Willmore, A.P.
The distribution of the heavy elements in the Perseus cluster
Nature, 347, 450
1990
Spacelab 2

Skinner, G.K., Foster, A.J., Willmore, A.P., and Eyles, C.J.
Localization of one of the galactic centre X-ray burst sources
Mon. Not. R. Astr. Soc., 243, 72-77
1990
Spacelab 2

Swordy, S.P., Müller, D., Meyer, P., L'Heureux, J., and Grunsfeld, J.
The observation of transition radiation from relativistic heavy nuclei
Phys. Rev. D., 42, 3197
1990
Spacelab 2

Swordy, S.P., Müller, D., Meyer, P., L'Heureux, J., and Grunsfeld, J.M.
Relative abundances of secondary and primary cosmic rays at high energies
Astrophysical J., 349, 625-633
1990
Spacelab 2

Yadav, J.S., and Singh, R.K.
Change of CR-39 (DOP) track detector response as a result of space exposure
Nucl. Tracks Radiat. Meas., 17, 579-582
1990
Spacelab 3

Yadav, J.S., and Singh, R.K.
Error analysis for particle identification in CR-39 track detectors
Nucl. Inst. and Meth. in Phys. Res, B51, 69-75
1990
Spacelab 3

Yadav, J.S., and Singh, R.K.
Spacelab-3 Anuradha detector response and the expected charge resolution
Nucl. Inst. and Meth. in Phys. Res., B51, 63-68
1990
Spacelab 3

Bjorkman, K.S., Nordsieck, K.H., Code, A.D., Anderson, C.M., Babler, B.L., Clayton, G.C., Magalhaes, A.M., Meade, M.R., Nook, M.A., Schulte-Ladbeck, R.E., Taylor, M., and Whitney, B.A.
First ultraviolet spectro-polarimetry of Be stars from WUPPE
Astrophysical J. Lett., 383, L67
1991
Astro-1

Blair, W.P., Long, K.S., Vancura, O., Bowers, C.W., Davidsen, A.F., Dixon, W.V., Durrance, S.T., Feldman, P.D., Ferguson, H.C., Henry, R.C., Kimble, R.A., Kriss, G.A., Kruk, J.W., Moos, H.W., and Gull, T.R.
Discovery of a fast radiative shock wave in the Cygnus Loop using the Hopkins Ultraviolet Telescope
Astrophysical J. Lett., 379, L33-L36
1991
Astro-1

Chang, E.S., and Schoenfeld, W.G.
Electrical field strength from the Solar 12 micron lines
Astrophysical J., 383, 450-458
1991
Spacelab 3, ATLAS 1

Clayton, G.C., Anderson, C.M., Magalhaes, A.M., Code, A.D., Nordsieck, K.H., Meade, M.R., Wolff, M., Babler, B.L., Bjorkman, K.S., Schulte-Ladbeck, R.E., Taylor, M., and Whitney, B.A.
The first spectropolarimetric study of the wavelength dependence of interstellar polarization in the ultraviolet
Astrophyiscal J. Lett., 385, L53
1991
Astro-1

Corcoran, M.F.
Broad-Band X-ray Telescope spectroscopy of ζ Puppis
Astrophysical J., 412, 792
1991
Astro-1

Davidsen, A.F., Kriss, G.A., Ferguson, H.C., Blair, W.P., Bowers, C.W., Dixon, W.V., Durrance, S.T., Feldman, P.D., Henry, R.C., Kimble, R.A., Kruk, J.W., Long, K.S., Moos, H.W., and Vancura, O.
A test of the decaying dark matter hypothesis using the Hopkins Ultraviolet Telescope
Nature, 351, 128-130
1991
Astro-1

Eyles, C.J., Watt, M.P., Bertram, D., Church, M.J., Knight, P.A., Ponman, T.J., Skinner, G.K., and Willmore, A.P.
Distribution of dark matter in the Perseus cluster, and mass distributions in the Coma and Ophiuchus clusters
In *After the First Three Minutes*, eds. S.S. Holt, C.L. Bennett, and V. Trimble, 405
1991
Spacelab 2

Eyles, C.J., Watt, M.P., Bertram, D., Church, M.J., Ponman, T.J., Skinner, G.K., and Willmore, A.P.
The distribution of dark matter in the Perseus cluster
Astrophysical J., 375, 23-32
1991
Spacelab 2

Feerrenq, R., Guelaachviili, G., Sauval, A.J., Grevesse, N., and Farmer, C.B.
Improved Dunham Coefficients for CO from infrared solar line of high rotational excitation
J. Mol. Spectrosc., 1139, 375-390
1991
Spacelab 3, ATLAS 1

Feldman, P.D., Davidsen, A.F., Blair, W.P., Bowers, C.W., Dixon, W.V., Durrance, S.T., Ferguson, H.C., Henry, R.C., Kimble, R.A., Kriss, G.A., Kruk, J.W., Long, K.S., Moos, H.W., Vancura, O., and Gull, T.R.
Observations of Comet Levy (1990c) with the Hopkins Ultraviolet Telescope
Astrophysical J. Lett., 379, L37-L40
1991
Astro-1

Ferguson, H.C., Davidsen, A.F., Kriss, G.A., Blair, W.P., Bowers, C.W., Dixon, W.V., Durrance, S.T., Feldman, P.D., Henry, R.C., Kruk, J.W., Moos, H.W., Vancura, O., Long, K.S., and Kimble, R.A.
Constraints on the origins of the ultraviolet upturn in elliptical galaxies from Hopkins Ultraviolet Telescope observations of NGC 1399
Astrophysical J. Lett., 382, L69-L73
1991
Astro-1

Jefferies, J.T.
The solar MgI spectrum from ATMOS: I - Identification and preliminary discussion
Astrophysical J., 377, 337-342
1991
Spacelab 3, ATLAS 1

Kent, S.M., Dame, T.M., and Fazio, G.
Galactic structure from the Spacelab Infrared Telescope: II. Luminosity models of the Milky Way
Astrophysical J., 378, 131
1991
Spacelab 2

Long, K.S., Blair, W.P., Davidsen, A.F., Bowers, C.W., Dixon, W.V., Durrance, S.T., Feldman, P.D., Henry, R.C., Kriss, G.A., Kruk, J.W., Moos, H.W., and Vancura, O.
Spectroscopy of Z Camelopardalis in outburst with the Hopkins Ultraviolet Telescope
Astrophysical J. Lett., 381, L25-L29
1991
Astro-1

Moos, H.W., Feldman, P.D., Durrance, S.T., Blair, W.P., Bowers, C.W., Davidsen, A.F., Dixon, W.V., Ferguson, H.C., Henry, R.C., Kimble, R.A., Kriss, G.A., Kruk, J.W., Long, K.S., and Vancura, O.
Determination of ionic abundances in the Io torus using the Hopkins Ultraviolet Telescope
Astrophysical J. Lett., 382, L105-L108
1991
Astro-1

Müller, D., Swordy, S.P., Meyer, P., L'Heureux, J., and Grunsfeld, J.M.
Energy spectra and composition of primary cosmic rays
Astrophysical J., 374, 356
1991
Spacelab 2

Ponman, T.J., Watt, M.P., Bertram, D., Church, M.J., Eyles, C.J., Skinner, G.K., and Willmore, A.P.
Spectral imaging observations of nearby galaxy clusters
In *Frontiers of X-ray Astronomy*, Universal Academy Press, Inc., & Yamada Science Foundation, 467-472
1991
Spacelab 2

Singh, R.K., Mitra, B., Durgaprasad, N., Biswas, S., Vahia, M.N., Yadav, J.S., Dutta, A., and Goswami, J.N.
Ionization states of the anomalous cosmic rays
Astrophysical J., 374, 753-765
1991
Spacelab 3

Taylor, M., Code, A.D., Nordsieck, K.H., Anderson, C.M., Babler, B., Bjorkman, K.S., Clayton, G.C., Magalhaes, A.M., Meade, M.R., Schulte-Ladbeck, R.E., and Whitney, B.A.
First UV spectropolarimetry of hot supergiants
Astrophysical J. Lett., 382, L85
1991
Astro-1

Viton, M., Deleuil, M., Tobin, W., Prévot, L., and Bouchet, P.
Analysis of the IUE high resolution spectra of two very hot adO stars
Astron. and Astrophys., 263, 190
1991
Spacelab 1

Biswas, S.
Design and fabrication of the Indian Cosmic Ray Payload on board Spacelab 3 - A case study
J. Aero. Soc. Ind., 34, 141-155
1992
Spacelab 3

Biswas, S., Durgaprasad, N., Mitra, B., and Dutta, A.
Anuradha and low-energy cosmic rays
Space Sci. Rev., 62, 3-67
1992
Spacelab 3

Blair, W.P., Long, K.S., Vancura, O., Bowers, C.W., Conger, S., Davidsen, A.F., Kriss, G.A., and Henry, R.B.C.
Far-ultraviolet observations of the Crab Nebula using the Hopkins Ultraviolet Telescope
Astrophysical J., 399, 611-620
1992
Astro-1

Chen, P.C., Cornett, R.H., Roberts, M.S., Bohlin, R.C., Neff, S.G., O'Connell, R.W., Parise, R.A., Smith, A.M., and Stecher, T.P.
Ultraviolet Imaging Telescope observations of the ScI galaxy NGC 628 (M74)
Astrophysical J. Lett., 395, L41-L44
1992
Astro-1

Cheng, K-P., Michalitsianos, A.G., Hintzen, P., Bohlin, R.C., O'Connell, R.W., Cornett, R.H., Roberts, M.S., Smith, A.M., Smith, E.P., and Stecher, T.P.
Astro-1 ultraviolet imaging of the 30 Doradus and SN 1987A fields with the Ultraviolet Imaging Telescope
Astrophysical J. Lett., 395, L29-L32
1992
Astro-1

Astronomy and Astrophysics

Cornett, R.H., Jenkins, E.B., Bohlin, R.C., Cheng, K-P., Gull, T.R., Hintzen, P.M., O'Connell, R.W., Parker, R.A.R., Roberts, M.S., Smith, A.M., Smith, E.P., and Stecher, T.P.

Ultraviolet Imaging Telescope observations of the Cygnus Loop

Astrophysical J. Lett., 395, L9-L12

1992

Astro-1

Crotts, A.P.S., Landsman, W.B., Bohlin, R.C., O'Connell, R.W., Roberts, M.S., Smith, A.M., and Stecher, T.P.

Observations of the light echoes from SN 1987A using the Astro-1 Ultraviolet Imaging Telescope

Astrophysical J. Lett., 395, L25-L28

1992

Astro-1

Davidsen, A.F., Long, K.S., Durrance, S.T., Blair, W.P., Bowers, C.W., Conard, S.J., Feldman, P.D., Ferguson, H.C., Fountain, G.H., Kimble, R.A., Kriss, G.A., Moos, H.W., and Potocki, K.A.

The Hopkins Ultraviolet Telescope: Performance and calibration during the Astro-1 mission

Astrophysical J., 392, 264-271

1992

Astro-1

Dutta, A., Singh, R.K., Mitra, B., Biswas, S., Durgaprasad, N., Goswami, J.N., Vahia, M.N., and Yadav, J.S.

Anomalous cosmic rays and their ionization states

Defense Sci. J., 42(4), 245-251

1992

Spacelab 3

Hennessy, G.S., O'Connell, R.W., Cheng, K-P., Bohlin, R.C., Collins, N.R., Gull, T.R., Hintzen, P., Isensee, J.E., Landsman, W.B., Roberts, M.S., Smith, A.M., Smith, E.P., and Stecher, T.P.

Ultraviolet Imaging Telescope observations of the Crab Nebula

Astrophysical J. Lett., 395, L13-L16

1992

Astro-1

Hill, J.K., Bohlin, R.C., Cheng K-P., Hintzen, P.M.N., Landsman, W.B., Neff, S.G., O'Connell, R.W., Roberts, M.S., Smith, A.M., Smith E.P., and Stecher, T.P.

Ultraviolet Imaging Telescope images: Large-scale structure, H II regions, and extinction in M81

Astrophysical J. Lett., 395, L37-L40

1992

Astro-1

Hill, J.K., Pfarr, B.B., Bohlin, R.C., Isensee, J.E., O'Connell, R.W., Neff, S.G., Roberts, M.S., Smith, A.M., and Stecher, T.P.

Ultraviolet Imaging Telescope photometry of massive stars: The OB association NGC 206 in M31

Astrophysical J. Lett., 395, L33-L36

1992

Astro-1

Hill, R.S., Hill, J.K., Landsman, W.B., Bohlin, R.C., Cheng, K-P., Hintzen, P.M.N., O'Connell, R.W., Roberts, M.S., Smith, A.M., Smith, E.P., and Stecher, T.P.

An Ultraviolet Imaging Telescope study of the globular cluster M79 (NGC 1904)

Astrophysical J. Lett., 395, L17-L20

1992

Astro-1

Kent, S.M., Mink, D., Fazio, G., Koch, D., Melnick, G., Tardiff, A., and Maxson, C.
Galactic structure from the Spacelab Infrared Telescope: I. 2.4 μm map
Astrophysical J. Suppl., 78, 403
1992
Spacelab 2

Kriss, G.A., Davidsen, A.F., Blair, W.P., Bowers, C.W., Dixon, W.V., Durrance, S.T., Feldman, P.D., Ferguson, H.C., Henry, R.C., Kimble, R.A., Kruk, J.W., Long, K.S., Moos, H.W., and Vancura, O.
Hopkins Ultraviolet Telescope Observations of the far-ultraviolet spectrum of NGC 4151
Astrophysical J., 392, 485-491
1992
Astro-1

Kriss, G.A., Davidsen, A.F., Blair, W.P., Ferguson, H.C., and Long, K.S.
Evidence for shock-heated gas in the Hopkins Ultraviolet Telescope spectrum of NGC 1068
Astrophysical J. Lett., 394, L37-L41
1992
Astro-1

Landsman, W.B., O'Connell, R.W., Whitney, J.H., Bohlin, R.C., Hill, R.S., Maran, S.P., Parise, R.A., Roberts, M.S., Smith, A.M., and Stecher, T.P.
The ultraviolet-bright stars of Omega Centauri, M3, and M13
Astrophysical J. Lett., 395, L21-L24
1992
Astro-1

Landsman, W.B., Roberts, M.S., Bohlin, R.C., O'Connell, R.W., Smith, A.M., and Stecher, T.P.
The ultraviolet color gradient in the late-type spiral galaxy M33
Astrophysical J. Lett., 401, L83-L86
1992
Astro-1

Long, K.S., Blair, W.P., Vancura, O., Bowers, C.W., Davidsen, A.F., and Raymond, J.C.
Spectroscopy of a Balmer-dominated filament in the Cygnus Loop with the Hopkins Ultraviolet Telescope
Astrophysical J., 400, 214-221
1992
Astro-1

O'Connell, R.W., Bohlin, R.C., Collins, N.R., Cornett, R.H., Hill, J.K., Hill, R.S., Landsman, W.B., Roberts, M.S., Smith, A.M., and Stecher, T.P.
Ultraviolet imaging of old populations in nearby galaxies
Astrophysical J. Lett., 395, L45-L48
1992
Astro-1

Schulte-Ladbeck, R.E., Nordsieck, K.H., Code, A.D., Anderson, C.M., Babler, B., Bjorkman, K.S., Clayton, G.C., Magalhaes, A.M., Meade, M.R., Shepherd, D.S., Taylor, M., and Whitney, B.A.
The first linear polarization spectra of Wolf-Rayet stars in the UV-EZ Canis Majoris and Theta Corona Borealis
Astrophysical J. Lett., 391, L37
1992
Astro-1

Smith, E.P., O'Connell, R.W., Bohlin, R.C., Cheng, K-P., Cornett, R.H., Hill, J.K., Hill, R.S., Hintzen, P.M., Landsman, W.B., Neff, S.G., Roberts, M.S., Smith, A.M., and Stecher, T.P.

Implications of Ultraviolet Imaging Telescope observations for star formation histories in NGC 1275

Astrophysical J. Lett., 395, L49-L54

1992

Astro-1

Stecher, T.P., Baker, G.R., Bartoe, D.D., Bauer, F.H., Blum, A., Bohlin, R.C., Butcher, H.R., Chen, P.C., Collins, N.R., Cornett, R.H., Deily, J.J., Greason, M.R., Hennessy, G.S., Hill, J.K., Hill, R.S., Hintzen, P.M., Isensee, J.E., Kenny, P.J., Landsman, W.B., Linard, D.L., Maran, S.P., Neff, S.G., Nichols, G.R., Novello, J., O'Connell, R.W., Offenberg, J.D., Parise, R.A., Pfarr, B.B., Plummer, T.B., Richardson, F.F., Roberts, M.S., Sitko, S.D., Smith, A.M., Stober, A.K., Stolarik, J.D., and Tebay, J.C.

The Ultraviolet Imaging Telescope: Design and performance

Astrophysical J Lett., 395, L1-L4

1992

Astro-1

Vancura, O., Blair, W.P., Long, K.S., Davidsen, A.F., Bowers, C.W., Dixon, W.V., Durrance, S.T., Feldman, P.D., Ferguson, H.C., Henry, R.C., Kimble, R.A., Kriss, G.A., Kruk, J.W., and Moos, H.W.

Far-ultraviolet observations of the supernova remnant N49 using the Hopkins Ultraviolet Telescope

Astrophysical J., 401, 220-225

1992

Astro-1

Watt, M.P., Ponman, T.J., Bertram, D., Eyles, C.J., Skinner, G.K., and Willmore, A.P.

The morphology and dark matter distribution of the Coma cluster of galaxies from X-ray observations

Mon. Not. R. Astr. Soc., 258, 738-748

1992

Spacelab 2

Weaver, K.A.

Broad Band X-ray Telescope observations NGC 4151: Iron line diagnostics

Astrophysical J. Lett., 401, L11

1992

Astro-1

Willmore, A.P., Bertram, D., Watt, M.P., Skinner, G.K., Ponman, T.J., Church, M.J., Herring, J.R.H., and Eyles, C.J.

Image correction in a coded mask X-ray telescope

Mon. Not. R. Astr. Soc., 258, 621-628

1992

Spacelab 2

Willmore, A.P., Eyles, C.J., Skinner, G.K., and Watt, M.P.

Hard X-ray emission from the Vela supernova remnant

Mon. Not. R. Astr. Soc., 254, 139-145

1992

Spacelab 2

Witt, A.N., Petersohn, J.K., Bohlin, R.C., O'Connell, R.W., Roberts, M.S., Smith, A.M., and Stecher, T.P.

Ultraviolet Imaging Telescope images of the reflection nebula NGC 7023: Derivation of ultraviolet scattering properties of dust grains

Astrophysical J. Lett., 395, L5-L8

1992

Astro-1

Bjorkman, K.S., Meade, M.R., Nordsieck, K.H., Anderson, C.M., Babler, B.L., Clayton, G.C., Code, A.D., Magalhaes, A.M., Schulte-Ladbeck, R.E., Taylor, M., and Whitney, B.A.

Ultraviolet spectropolarimetry of the Be star PP Carinae with WUPPE

Astrophysical J., 412, 810

1993

Astro-1

Bohlin, R.C., Deutsch, E.W., McQuade, K.A., Hill, J.K., Landsman, W.B., O'Connell, R.W., Roberts, M.S., Smith, A.M., and Stecher, T.M.
Ultraviolet Imaging Telescope: Globular clusters in M31
Astrophysical J., 417, 127
1993
Astro-1

Code, A.D., Anderson, C.M., Clayton, G.C., Nordsieck, K.H., Magalhaes, A.M., Meade, M.R., Babler, B.L., Bjorkman, K.S., Schulte-Ladbeck, R.E., Taylor, M., and Whitney, B.A.
The first ultraviolet spectropolarimetric study of NGC 1068
Astrophysical J. Lett., 403, L63
1993
Astro-1

Davidsen, A.F.
Far-ultraviolet astronomy on the Astro-1 Space Shuttle mission
Science, 259, 327-334
1993
Astro-1

Dutta, A., Goswami, J.N., Biswas, S., Durgaprasad, N., Mitra, B., and Singh, R.K.
Ionization states of low-energy cosmic rays: Results from Spacelab-3 Cosmic Ray Experiment
Astrophysical J., 411, 418-430
1993
Spacelab 3

Ferguson, H.C., and Davidsen, A.F.
The hot stellar component in elliptical galaxies and spiral bulges: I. The far-ultraviolet spectrum of the bulge of M31
Astrophysical J., 408, 92-107
1993
Astro-1

Hill, J.K., Bohlin, R.C., Cheng, K-P., Fanelli, M.N., Hintzen, P.M.N., O'Connell, R.W., Roberts, M.S., Smith, A.M., Smith, E.P., and Stecher, T.P.
30 Doradus: Ultraviolet and optical stellar photometry
Astrophysical J., 413, 604-610
1993
Astro-1

Hill, J.K., Gessner, S.E., Bohlin, R.C., Cheng, K-P., Hintzen, P.M.N., O'Connell, R.W., Roberts, M.S., Smith, A.M., Smith, E.P., and Stecher, T.P.
Ultraviolet Imaging Telescope images: Limits on recent star formation in Holmberg IX
Astrophysical J. Lett., 402, L45-L48
1993
Astro-1

Hill, J.K., Isensee, J.E., Bohlin, R.C., O'Connell, R.W., Roberts, M.S., Smith, A.M., and Stecher, T.P.
Ultraviolet photometry of OB associations in M31
Astrophysical J. Lett., 414, L9-L12
1993
Astro-1

Kallman, T.R.
BBXRT observations of the Magnetic Cataclysmic Variable H0538+608 = BY Cam
Astrophysical J., 411, 869
1993
Astro-1

Kimble, R.A., Davidsen, A.F., Blair, W.P., Bowers, C.W., Dixon, W.V., Durrance, S.T., Feldman, P.D., Ferguson, H.C., Henry, R.C., Kriss, G.A., Kruk, J.W., Long, K.S., Moos, H.W., and Vancura, O.
Extreme ultraviolet observations of G191-B2B and the local interstellar medium with the Hopkins Ultraviolet Telescope
Astrophysical J., 404, 663-672
1993
Astro-1

Kimble, R.A., Davidsen, A.F., Long, K.S., and Feldman, P.D.
EUV observations of HZ43 and the local H/He ratio with the Hopkins Ultraviolet Telescope
Astrophysical. J. Lett., 408, L41-L44
1993
Astro-1

Lampton, M., Sasseen, T., Wu, X., and Bowyer, S.
A study of the impact of the Space Shuttle environment on faint far-UV geophysical and astronomical phenomena
Geophys. Res. Lett., 20, 539
1993
ATLAS 1

Long, K.S., Blair, W.P., Bowers, C.W., Davidsen, A.F., Kriss, G.A., Sion, E.M., and Hubeny, I.
Observations of the white dwarf in the U Geminorum system with the Hopkins Ultraviolet Telescope
Astrophysical J., 405, 327-336
1993
Astro-1

Marshall, F.E.
A new X-ray spectral observation of NGC 1068
Astrophysical J., 405, 168
1993
Astro-1

Marshall, F.E.
The X-ray spectrum of Cygnus X-1
Astrophysical J., 419, 301
1993
Astro-1

McCandliss, S.R., Buss, R.H., Blair, W.P., Bowers, C.W., Davidsen, A.F., Feldman, P.D., and Kruk, J.W.
The Spectrum of EZ Canis Majoris (HD 50896) to the Lyman limit with the Hopkins Ultraviolet Telescope
Astrophysical J., 416, 372-378
1993
Astro-1

Miyaji, T.
Spatially resolved X-ray spectroscopy of the merging galaxy cluster A2256
Astrophysical J., 419, 66
1993
Astro-1

Murthy, J., Dring, A., Henry, R.C., Kruk, J.W., Blair, W.P., Kimble, R.A., and Durrance, S.T.
Hopkins Ultraviolet Telescope observations of far-ultraviolet scattering in NGC 7023: The dust albedo
Astrophysical J. Lett., 408, L97-L100
1993
Astro-1

Petre, R.
The broad band X-ray spectrum of the nucleus of M81
Astrophysical J., 418, 644
1993
Astro-1

Schlegel, E.
A BBXRT spectrum of the massive X-ray binary X PER
Astrophysical J., 407, 744
1993
Astro-1

Schulte-Ladbek, R.E., Shepherd, D.S., Nordsieck, K.H., Code, A.D., Anderson, C.M., Babler, B.L., Bjorkman, K.S., Clayton, G.C., Magalhaes, A.M., Meade, M.R., Taylor, M., and Whitney, B.A.
Evidence for a bipolar nebula around the peculiar B(e) star HD 45677 from ultraviolet spectropolarimetry
Astrophysical J. Lett., 401, L105
1993
Astro-1

Serlemitsos, P.J.
BBXRT observations of the hot interstellar media in NGC 1399 and NGC 4472
Astrophysical J., 413, 518
1993
Astro-1

Simpson, J.P., Witteborn, F.C., Graps, A., Fazio, G.G., and Koch, D.G.
Particle sightings by the Infrared Telescope on Spacelab 2
J. Spacecraft and Rockets, 30(2), 216
1993
Spacelab 2

Smale, A.P.
Cygnus X-3 in an "ultrahigh" X-ray state with no detected Ka Line emission
Astrophysical J., 418, 894
1993
Astro-1

Smale, A.P.
Resolving the Iron K Line in Cygnus X-2: An observation with BBXRT
Astrophysical J., 410, 796
1993
Astro-1

Turner, T.J.
BBXRT and GINGA observations of the Seyfert I Galaxy Markarian 335
Astrophysical J., 407, 556
1993
Astro-1

Wolf, M.J.
UV interstellar linear polarization: I. Applicability of current dust grain models
Astrophysical J., 403, 722
1993
Astro-1

Yaqoob, T.
A BBXRT observation of the high luminosity quasar H1821+643
Astrophysical J., 418, 638
1993
Astro-1

Biswas, S.
Galactic cosmic ray heavy ions in near Earth space: Ionization states and their implications
(IN PRESS) Adv. Space Res.
1994
Spacelab 3

Biswas, S., Durgaprasad, N., Singh, R.K., Vahia, M.N., Yadav, J.S., Dutta, A., and Goswami, J.N.
Observation of enhanced sub-iron (Sc-Cr) to iron abundance ratios in the low energy galactic cosmic rays in Spacelab 3 and their implications
J. Astrophys. Astron., 15, 85-94
1994
Spacelab 3

Astronomy and Astrophysics

Brosch, N., Almozvino, E., Liebowitz, E., Netzer, H., Sasseen, T., Bowyer, S., Lampton, M., and Wu, X.
FAUST observations of the North Galactic Pole
(IN PRESS) Astrophysical J.
1994
ATLAS 1

Buss, R.H., Jr., Allen, M., McCandliss, S., Kruk, J.W., Liu, J-C., and Brown, T.M.
Evolution of macro-molecular dust: Far-ultraviolet, spectral dust-extinction and gas absorption of stellar light as measured with the Hopkins Ultraviolet Telescope
Astrophysical J., 430, 630
1994
Astro-1

Buss, R.H., Jr., Allen, M., McCandliss, S., Liu, J-C., and Kruk, J.W.
Evolution of tiny dust: far-ultraviolet, spectral dust-extinction and gas absorption of stellar light as measured with the Hopkins Ultraviolet Telescope
(IN PRESS) Astrophysical J.
1994
Astro-1

Deharveng, J.M. Sasseen, T.P., Buat, V., Bowyer, S., Wu, X., and Lampton, M.
Ultraviolet observations of galaxies with the FAUST experiment
(IN PRESS) Astrophysical J.
1994
ATLAS 1

Dixon, W.V., Davidsen, A.F., and Ferguson, H.C.
Observations of UV-bright stars in globular clusters with the Hopkins Ultraviolet Telescope
Astron. J., 107, 1388
1994
Astro-1

Farmer, C.B.
The ATMOS solar atlas
Infrared Solar Physics, 511-521
1994
Spacelab 3, ATLAS 1, ATLAS 2

Hall, D.T., Bednar, C.J., Durrance, S.T., Feldman, P.D., McGrath, M.A., Moos, H.W., and Strobel, D.F.
Hopkins Ultraviolet Telescope determination of the Io torus electron temperature
Astrophysical J. Lett., 420, L45-L48
1994
Astro-1

Long, K.S., Wade, R.A., Blair, W.P., Davidsen, A.F., and Hubeny, I.
Observations of the bright nova-like variable IX Vel with the Hopkins Ultraviolet Telescope
Astrophysical J., 426, 704
1994
Astro-1

Parise, R.A., Maran, S.P., Landsman, W.B., Bohlin, R.C., Greason, M.R., Hintzen, P.M.N., O'Connell, R.W., Roberts, M.S., Smith, A.M., and Stecher, T.P.
A UV-visible investigation of the globular cluster NGC 1851
(IN PRESS) Astrophysical J.
1994
Astro-1

Sasseen, T. Lampton, M., and Bowyer, S.
The effect of infrared cirrus on measurements of the optical and far-ultraviolet extragalactic background
(IN PRESS) Astrophysical J.
1994
ATLAS 1

Astronomy and Astrophysics

Beaujean, R.
Temporal variation of the oxygen flux in the inner magnetosphere
Adv. Space Res., 15(1), 69-74
1995
Spacelab 1

Keenan, F.P., Ramsbottom, C.A., Bell, K.L., Berrington, K.A., Hibbert, A., Feibelman, W.A., and Blair, W.P.
N IV emission lines in the ultraviolet spectra of gaseous nebulae
(IN PRESS) Astrophysical J.
1995
Astro-1

ATMOSPHERIC SCIENCE

Atmospheric Science

Torr, M.R., and Devlin, J.
Intensified charge coupled device for use as a spaceborne spectrographic image plane detector system
Appl. Optics, 21, 3091
1982
Spacelab 1

Torr, M.R., and Vitz, R.C.
An extreme ultraviolet imaging spectrometer for thermospheric emission
Appl. Optics, 21, 3080
1982
Spacelab 1

Torr, M.R., Basedow, R.W., and Torr, D.G.
Imaging spectroscopy of the thermosphere from the Space Shuttle
Appl. Optics, 21, 4130
1982
Spacelab 1

Torr, M.R., Basedow, R.W., and Mount, J.
An Imaging Spectrometric Observatory for Spacelab
Astrophys. and Space Sci., 92, 237
1983
Spacelab 1

Bertaux, J.L., Goutail, F., and Kockarts, G.
Observations of Lyman alpha emissions of hydrogen and deuterium on Spacelab 1: Preliminary results
Science, 225, 174-176
1984
Spacelab 1

Bertaux, J.L., Goutail, F., Dimarellis, E., Kockarts, G., and van Ransbeeck, E.
First optical detection of atomic deuterium in the upper atmosphere from SPACELAB 1
Nature, 309, 771-773
1984
Spacelab 1

Crommelynck, D., and Domingo, V.
L'Experience 1ES 021 "Constant Solaire" sur Spacelab 1
Physicalia, 6, 117-131
1984
Spacelab 1

Crommelynck, D., and Domingo, V.
Solar irradiance observations
Science, 225, 180-181
1984
Spacelab 1

Kockarts, G., van Ransbeeck, E., Bertaux, J.L., Dimarellis, E., and Goutail, F.
Mesure de l'hydrogène et du deutérium depuis Spacelab-1
Physicalia, 6, 105-116
1984
Spacelab 1

Torr, M.R.
A new image of the atmosphere
New Scientist, 42, 1418
1984
Spacelab 1

Torr, M.R., and Torr, D.G.
Atmospheric spectral imaging
Science, 225, 169
1984
Spacelab 1

Torr, M.R., and Torr, D.G.
Energetic oxygen in a mid-latitude aurora
J. Geophys. Res., 89, 5547
1984
Spacelab 1

Shaw, J.H.
Atmospheric winds from occultation spectra
Appl. Optics, 24, 2433-2436
1985
Spacelab 3

Torr, M.R.
Osmium coated diffraction grating in the Space Shuttle environment: Performance
Appl. Optics, 24, 2959
1985
Spacelab 1

Torr, M.R.
Persistence of phosphor glow in microchannel plate image intensifiers
Appl. Optics, 24, 793
1985
Spacelab 1

Torr, M.R., and Torr, D.G.
A preliminary spectroscopic assessment of the Spacelab 1/Shuttle optical environment
J. Geophys. Res., 90, 1683
1985
Spacelab 1

Torr, M.R., and Torr, D.G.
The N II 2143-Angstrom dayglow from Spacelab 1
J. Geophys. Res., 90(A7), 6679
1985
Spacelab 1

Torr, M.R., Torr, D.G., and Eun, J.W.
A spectral search for Lyman-Birge-Hopfield band nightglow from Spacelab 1
J. Geophys. Res., 90, 4427
1985
Spacelab 1

Torr, M.R., Torr, D.G., and Laher, R.R.
The O_2 atmospheric 0-0 band and related emissions at night from Spacelab 1
J. Geophys. Res., 90(A9), 8525
1985
Spacelab 1

Ishimotoe, M., Torr, M.R., Richards, P.G., and Torr, D.G.
The role of energetic O^+ precipitation in a mid-latitude aurora
J. Geophys. Res., 91(A5), 5793
1986
Spacelab 1, ATLAS 1

Park, J.H., Zander, R., Farmer, C.B., Rinsland, C.P., Russell, J.M., III, Norton, R.H., and Raper, O.F.
Spectroscopic detection of CH_3Cl in the upper troposphere and lower stratosphere
Geophys. Res. Lett., 13, 765-768
1986
Spacelab 3, ATLAS 1

Rinsland, C.P., Zander, R., Brown, L.R., Farmer, C.B., Park, J.H., Norton, R.H., Russell, J.M., III, and Raper, O.F.
Detection of carbonyl fluoride in the stratosphere
Geophys. Res. Lett., 13, 769-772
1986
Spacelab 3, ATLAS 1

Rinsland, C.P., Zander, R., Farmer, C.B., Norton, R.H., Brown, L.R., Russell, J.M., III, and Park, J.H.
Evidence for the presence of the 802.7 cm^{-1} Band Q branch of HO_2NO_2 in high resolution solar absorption spectra of the stratosphere
Geophys. Res. Lett., 13, 761-764
1986
Spacelab 3, ATLAS 1

Toon, G.C., Farmer, C.B., and Norton, R.H.
Detection of stratospheric N_2O_5 by infrared remote sounding
Nature, 319, 570-571
1986
Spacelab 3, ATLAS 1

Torr, M.R., Torr, D.G., Baum, R., and Spielmaker, R.
Intensified-CCD focal plane detector for space applications: A second generation
Appl. Optics, 25(16), 2768
1986
Spacelab 1

Torr, M.R., Welsh, B.Y., and Torr, D.G.
The O_2 atmospheric dayglow in the thermosphere
J. Geophys. Res., 91(A4), 4561
1986
Spacelab 1

Zander, R., Rinsland, C.P., Farmer, C.B., Brown, L.R., and Norton, R.H.
Observation of several chlorine nitrate ($ClONO_2$) bands in stratospheric infrared spectra
Geophys. Res. Lett., 13, 757-760
1986
Spacelab 3

Brown, L.R., Farmer, C.B., Rinsland, C.P., and Toth, R.A.
Molecular line parameters for the Atmospheric Trace Molecule Spectroscopy (ATMOS) experiment
Appl. Optics, 26, 5154-5182
1987
Spacelab 3

Crommelynck, D., Domingo, V., and Brusa, R.
Results of the Solar Constant Experiment onboard Spacelab 1
Solar Physics, 107(1), 1-9
1987
Spacelab 1

Farmer, C.B.
High resolution infrared spectroscopy of the Sun and the Earth's atmosphere from space
Mikrochim. Acta (Wien), III, 189-214
1987
Spacelab 3

Ishimoto, M., and Torr, M.R.
Energetic He^+ precipitation in a mid-latitude aurora
J. Geophys. Res., 92(A4), 3284
1987
Spacelab 1

Raper, O.F., Farmer, C.B., Zander, R., and Park, J.H.
Infrared spectroscopic measurements of halogenated sink and reservoir gases in the stratosphere from the ATMOS Spacelab 3 mission
J. Geophys. Res., 92, 9851-9858
1987
Spacelab 3

Rinsland, C.P., Zander, R., Farmer, C.B., Norton, R.H., and Russell, J.M., III
Concentration of ethane (C_2H_6) in the lower stratosphere and the upper troposphere and acetylene (C_2H_2) in the upper troposphere deduced from ATMOS Spacelab 3 spectra
J. Geophys. Res., 92, 11951-11964
1987
Spacelab 3

Rusch, D.W., and Clancy, R.T.
Minor constituents in the upper stratosphere and mesosphere
Rev. Geophys., 25, 479-486
1987
Spacelab 3

Torr, M.R., Owens, J.K., and Torr, D.G.
Reply to "Comment on 'The O_2 atmospheric dayglow in the thermosphere' by M. R. Torr, B. Y. Welsh, and D. G. Torr"
J. Geophys. Res., 92(A7), 7756
1987
Spacelab 1

Torr, M.R., Owens, J.K., Eun, J.W., Torr, D.G., and Richards, P.G.
The natural background at Shuttle altitudes
Adv. Space Res., 7(5), 141
1987
Spacelab 1

Van Cleef, G.W., Shaw, J.H., and Farmer, C.B.
Zonal winds between 25 and 120 kilometers obtained from solar occultation spectra
Geophys. Res. Lett., 14, 1266-1268
1987
Spacelab 3

Zander, R., Rinsland, C.P., Farmer, C.B., and Norton, R.H.
Infrared spectroscopic measurements of halogenated source gases in the stratosphere with the ATMOS instrument
J. Geophys. Res., 92, 9836-9850
1987
Spacelab 3

Beer, R., and Norton, R.H.
Analysis of spectra using correlation functions
Appl. Optics, 27, 1255-1261
1988
Spacelab 3

Russell, J.M., III, Farmer, C.B., Rinsland, C.P., Zander, R., Froidevaux, L., Toon, G.C., Gao, B., Shaw, J., and Gunson, M.R.
Measurements of odd nitrogen compounds in the stratosphere by the ATMOS experiment on Spacelab 3
J. Geophys. Res., 93, 1718-1736
1988
Spacelab 3

Torr, M.R., and Torr, D.G.
Gas phase collisional excitation of infrared emissions in the vicinity of the Space Shuttle
Geophys. Res. Lett., 15, 95
1988
Spacelab 1

Torr, M.R., Torr, D.G., and Owens, J.K.
Optical environment of the Spacelab-1 mission
J. Spacecraft and Rockets, 5(2), 125
1988
Spacelab 1

VanHoosier, M., Bartoe, J-D., Brueckner, G., and Prinz, D.
Absolute solar spectral irradiance 120nm-400nm (results from the Solar Ultraviolet Spectral Irradiance Monitor-SUSIM-experiment on-board Spacelab 2)
Astro. Lett. and Comm., 27, 163-168
1988
Spacelab 2

Zander, R., Rinsland, C.P., Farmer, C.B., Namkung, J., Norton, R.H., and Russell, J.M., III
Concentrations of carbonyl sulfide (COS) and hydrogen cyanide (HCN) in the free upper troposphere and lower stratosphere deduced from ATMOS/Spacelab 3 infrared solar occulation spectra
J. Geophys. Res., 93, 1669-1678
1988
Spacelab 3

Atmospheric Science

Bertaux, J.L., Le Texier, H., Goutail, F., Lallement, R., and Kockarts, G.
Lyman-alpha observations of geocoronal and interplanetary hydrogen from Spacelab-1: Exospheric temperature and density and hot emission
Ann. Geophysicae, 7(6), 549-563
1989
Spacelab 1

Lean, J., and Brueckner, G.
Intermediate term solar periodicities 100-500 days
Astrophysical J., 337, 568-576
1989
Spacelab 2

McElroy, M.B., and Salawitch, R.J.
Changing composition of the global stratosphere
Science, 243, 763-770
1989
Spacelab 3

McElroy, M.B., and Salawitch, R.J.
Stratospheric ozone: Impact of human activity
Planet. Space Sci., 37, 1653-1672
1989
Spacelab 3

Rinsland, C.P., and Strow, L.L.
Line mixing effects in solar occulation spectra of the lower stratosphere: Measurements and comparisons with calculations for the 1932 cm^{-1} CO_2 Q branch
Appl. Optics, 28, 457-464
1989
Spacelab 3

Rinsland, C.P., Toon, G.C., Farmer, C.B., Norton, R.H., and Namkung, J.S.
Stratospheric N_2O_5 profiles at sunrise and sunset from further analysis of the ATMOS/Spacelab 3 solar spectra
J. Geophys. Res., 94, 18341-18349
1989
Spacelab 3

Rinsland, C.P., Zander, R., Namkung, J.S., Farmer, C.B., and Norton, R.H.
Stratospheric infrared continuum absorptions observed by the ATMOS instrument
J. Geophys. Res., 94, 16303-16322
1989
Spacelab 3

Allen, M., and Delitsky, M.L.
Stratospheric NO, NO_2, and N_2O_5: A comparison of model results with Spacelab 3 Atmospheric Trace Molecule Spectroscopy (ATMOS) measurements
J. Geophys. Res., 95, 14077-14082
1990
Spacelab 3

Bevilacqua, R.M., Summers, M.E., Strobel, D.F., Olivero, J.J., and Allen, M.
The seasonal variation of water vapor and ozone in the upper mesosphere--implications for vertical transport and ozone photochemistry
J. Geophys. Res., 95, 883-893
1990
Spacelab 3

Gunson, M.R., Farmer, C.B., Norton, R.H., Zander, R., Rinsland, C.P., Shaw, J.H., and Gao, B.C.
Measurements of CH_4, O_3, CO, H_2O, and O in the middle atmosphere by the ATMOS experiment on Spacelab 3
J. Geophys. Res., 95, 13867-13882
1990
Spacelab 3

Pyle, J.A., and Toumi, R.
Testing of photochemical theory with solar occultation data
J. Atm. Chem., 11, 227-243
1990
Spacelab 3

Rinsland, C.P., Brown, L.R., and Farmer, C.B.
Infrared spectroscopic detection of sulfur hexafluoride (SF_6) in the lower stratosphere and upper troposphere
J. Geophys. Res., 95, 5577-5585
1990
Spacelab 3

Swift, W.R., Torr, D.G., Hamilton, C., Dougani, H., and Torr, M.R.
A procedure for the extraction of weak spectral features in the presence of strong background radiation
J. Geophys. Res., 95(A9), 15227
1990
Spacelab 1

Torr, M.R., Torr, D.G., Bhatt, P., Swift, W., and Dougani, H.
Ca^+ emission in the sunlit ionosphere
J. Geophys. Res., 95(A3), 2379
1990
Spacelab 1

Zander, R., Gunson, M.R., Foster, J.C., Rinsland, C.P., and Namkung, J.
Stratospheric $ClONO_2$, HCl, and HF concentration profiles derived from ATMOS Spacelab 3 observations: An update
J. Geophys. Res., 95, 20519-20525
1990
Spacelab 3

Allen, M., and Delitsky, M.L.
A test of odd-oxygen photochemistry using Spacelab 3 Atmospheric Trace Molecule Spectroscopy observations
J. Geophys. Res., 96, 12883-12891
1991
Spacelab 3

Allen, M., and Delitsky, M.L.
Inferring the abundances of ClO and H_2O from Spacelab 3 Atmospheric Trace Molecule Spectroscopy observations
J. Geophys. Res., 96, 2913-2919
1991
Spacelab 3

Edwards, D.P., and Strow, L.L.
Spectral line shape considerations for limb temperature sounders
J. Geophys. Res., 96, 20859-20868
1991
Spacelab 3

Fennelly, J.A., Torr, D.G., Richards, P.G., Torr, M.R., and Sharp, W.E.
A method for the retrieval of atomic oxygen number density and temperature profiles from ground-based measurements of the $O^+(^2D\text{-}^2P)$ 7320 Angstrom twilight airglow
J. Geophys. Res., 96(A2), 1263
1991
Spacelab 1

Grevesse, N., Lambert, D.L., Sauval, A.J., van Dishoeck, E.F., Farmer, C.B., and Norton, R.H.
Vibration rotation bands of CH in the solar infrared spectrum and the solar carbon abundance
Astron. and Astrophys., 242, 488-495
1991
Spacelab 3

Natarajan, M., and Callis, L.B.
Stratospheric photochemical studies with Atmospheric Trace Molecular Spectroscopy (ATMOS) measurements
J. Geophys. Res., 96, 9361-9370
1991
Spacelab 3

Norton, R.H., and Rinsland, C.P.
ATMOS data processing and science analysis methods
Appl. Optics, 30, 389-400
1991
Spacelab 3

Pitts, D.E., Sapp, C.A., and Vaughan, O.H.
Lightning flash mensuration using video from the Space Shuttle Columbia (STS-32)
Space Shuttle Earth Observations, eds. Lulla and Helfert, Geocarto International (1)
1991
OSS-1

Rinsland, C.P., Gunson, M.R., Foster, J.C., Toth, R.A., Farmer, C.B., and Zander, R.
Stratospheric profiles of heavy water vapor isotopes and CH_3D from analysis of the ATMOS Spacelab 3 infrared solar spectra
J. Geophys. Res., 96, 1057-1068
1991
Spacelab 3

Rinsland, C.P., Zander, R., Goldman, A., Murcray, F.J., Murcray, D.G., Munson, M.R., and Farmer, C.B.
The fundamental quadropole band of $^{14}N_2$: Line positions from high resolution stratospheric solar absorption spectra
J. Mol. Spectrosc., 148, 274-279
1991
Spacelab 3

Toumi, R., Pyle, J.A., Webster, C.R., and May, R.D.
Theoretical interpretation of N_2O_5 measurements
Geophys. Res. Lett., 18, 1213-1216
1991
Spacelab 3

Boeck, W., Vaughan, O.H., Blakeslee, R., Vonnegut, B., and Brook, M.
Lightning induced brightening of the airglow layer
Geophys. Res. Lett., 19, 99-102
1992
OSTA-1

Brown, L.R., Farmer, C.B., Rinsland, C.P., and Zander, R.
Remote sensing of the atmosphere by high resolution infrared absortion spectroscopy
In *Spectroscopy of the Earth's Atmosphere and Interstellar Medium*, Academic Press
1992
Spacelab 3, ATLAS 1

Croskey, C.L., Kämpfer, N., Bevilacqua, R.M., Hartmann, G.K., Künzi, K.F., Schwartz, P.R., Olivero, J.J., Puliafito, S.E., Aellig, C., Umlauft, G., Waltman, W.B., and Degenhardt, W.
The Millimeter Wave Atmospheric Sounder (MAS): A Shuttle-based remote sensing experiment
IEEE Trans. Geosci. Remote Sens., 40, 1090-1100
1992
ATLAS 1

Feldman, P.D., Davidsen, A.F., Blair, W.P., Bowers, C.W., Durrance, S.T., Kriss, G.A., Ferguson, H.C., Kimble, R.A., and Long, K.S.
The spectrum of the tropical oxygen nightglow observed at 3 Å resolution with the Hopkins Ultraviolet Telescope
Geophys. Res. Lett., 19(5), 453-456
1992
Astro-1

Atmospheric Science

Lopez-Puertas, M., Lopez-Valverde, M., Rinsland, C.P., and Gunson, M.R.
Analysis of the upper atmosphere $C0_2(u_2)$ vibrational temperatures from ATMOS/Spacelab 3 observations
J. Geophys. Res., 97, 20469-20478
1992
Spacelab 3

Rinsland, C.P., Gunson, M.R., Zander, R., and Lopez-Puertas, M.
Middle and upper atmosphere pressure temperature profiles and the abundances of CO_2 and CO in the upper atmosphere from ATMOS/Spacelab 3 observations
J. Geophys. Res., 97, 20479-20495
1992
Spacelab 3

Rodgers, C.D., Taylor, F.W., Muggeridge, A.H., Lopez-Puertas, M., and Lopez-Valverde, M.A.
Local thermodynamic equilibrium of carbon dioxide in the upper atmosphere
Geophys. Res. Lett., 19, 589-592
1992
Spacelab 3

Torr, M.R., and Sullivan, K.
The Atmospheric Laboratory for Applications and Science - 1 A Shuttle mission
EOS, Trans. Am. Geophys. Union, 73, 105
1992
ATLAS 1

Torr, M.R., Torr, D.G., and Richards, P.G.
The N_2^+ first negative system in the dayglow from Spacelab 1
J. Geophys. Res., 97, 17075
1992
Spacelab 1

Vaughan, O.H., Blakeslee, R., Boeck, W.L., Vonnegut, B., Brook, M., and McKune, J.
A cloud-to-space lightning as recorded by the Space Shuttle payload-bay TV cameras
Mon. Weather Rev., 120(7), 1459-1461
1992
OSS-1

Zander, R., Gunson, M.R., Farmer, C.B., Rinsland, C.P., Irion, F.W., and Mahieu, E.
The 1985 chlorine and fluorine inventories in the stratosphere based on ATMOS observations at 30 North Latitude
J. Atm. Chem., 15, 171-186
1992
Spacelab 3, ATLAS 1

Aellig, C.P., Kämpfer, N., and Bevilacqua, R.M.
Error analysis of ClO, O_3, and H_2O abundance profiles retrieved from millimeter wave limb sounding measurements
J. Geophys. Res., 98, 2975-2983
1993
ATLAS 1

Bertaux, J.L., Quemerais, E., and Goutail, F.
Observations of atomic deuterium in the mesosphere from ATLAS-1 with ALAE instrument
Geophys. Res. Lett., 20, 507-510
1993
ATLAS 1

Chakraborty, S., Sasseen, T., Lampton, M., and Bowyer, S.
Observations of terrestrial FUV emissions by the FAUST telescope
Geophys. Res. Lett., 20, 535
1993
ATLAS 1

Chiou, E.W., McCormick, M.P., McMaster, L.R., Chu, W.P., Larsen, J.C., Rind, D., and Oltmans, S.

Intercomparison of stratospheric water vapor observed by satellite experiments--stratospheric aerosol and gas experiment II versus limb infrared monitor of the stratosphere and atmospheric trace molecule spectroscopy

J. Geophys. Res., 98, 4875-4887

1993

Spacelab 3, ATLAS 1

Crommelynck, D.

L'Experience SOLCON

Ciel et Terre, 109, 99-105

1993

Spacelab 1, ATLAS 1, ATLAS 2

Crommelynck, D., Domingo, V., Fichot, A., and Lee, B.

Solar irradiance observations from the EURECA and ATLAS programs

In *Solar Physics*, Cambridge University Press and Kluwer Academic Publishers

1993

ATLAS 1, ATLAS 2

Feldman, P.D., McGrath, M.A., Moos, H.W., Durrance, S.T., Strobel, D.F., and Davidsen, A.F.

The spectrum of the Jovian dayglow observed at 3 Å resolution with the Hopkins Ultraviolet Telescope

Astrophysical J., 406, 279-284

1993

Astro-1

Fennelly, J.A., Torr, D.G., Torr, M.R., Richards, P.G., and Yung, S.

Retrieval of thermospheric oxygen, nitrogen, and temperature from the 732nm emission measured by the ISO on ATLAS-1

Geophys. Res. Lett., 20, 527

1993

ATLAS 1

Gunson, M.R., and Zander, R.

An overview of the relevant results from the ATMOS missions of 1985 and 1992

In NATO ASI Series 18, *The Role of the Stratosphere in Global Change*, Springer-Verlag, Berlin, 387-401

1993

Spacelab 3, ATLAS 1

Langen, J., Urban, J., Künzi, K., Hartmann, G.K., Degenhardt, W., Hartogh, P., Loidl, A., Richards, M., Umlauft, G., Zwick, R., Schwartz, P., Bevilacqua, R.M., Pauls, T., Waltman, W., Olivero, J.J., Croskey, C., Kämpfer, N., Aellig, C., and Puliafito, S.E.

Hydrostatic pressure in the stratosphere retrieved from Millimeter Wave Atmospheric Sounder (MAS) oxygen spectra

Ann. Geophysicae Suppl. III to Vol. II, C409

1993

ATLAS 1

Morgan, M.F., Torr, D.G., and Torr, M.R.

Preliminary measurements of mesospheric OH by ISO on ATLAS-1

Geophys. Res. Lett., 20, 511

1993

ATLAS 1

Owens, J.K., Torr, D.G., Torr, M.R., Fennelly, J.A., Richards, P.G., Morgan, M.F., Baldridge, T.W., Fellows, C.W., Dougani, H., Swift, W., Tejada, A., Orme, T., Germany, G., and Yung, S.

Mesospheric nightglow spectral survey taken by the ISO imager on ATLAS-1

Geophys. Res. Lett., 20, 515

1993

ATLAS 1

Atmospheric Science

Rinsland, C.P., Gunson, M.R., Abrams, M.C., Lowes, L.L., Zander, R., and Mahieu, E.
ATMOS/ATLAS 1 measurements of sulfur hexafluoride (SF_6) in the lower stratosphere and upper troposphere
J. Geophys. Res., 98(D11), 20491-20494
1993
ATLAS 1

Torr, D.G., and Torr, M.R.
Thermospheric airglow emissions: A comparison of measurements from ATLAS-1 and theory
Geophys. Res. Lett., 20, 519
1993
ATLAS 1

Torr, M.R.
The scientific objectives of the ATLAS-1 mission
Geophys. Res. Lett., 20, 487
1993
ATLAS 1

Torr, M.R., Torr, D.G., and Richards, P.G.
$N(^2P)$ in the dayglow: Measurement and theory
Geophys. Res. Lett., 20, 531
1993
ATLAS 1

Torr, M.R., Torr, D.G., Chang, T., Richards, P.G., Baldridge, T.W., Owens, J.K., Dougani, H., Fellows, C., Swift, W., Yung, S., and Hladky, J.
The first negative bands of N_2^+ in the dayglow from the ATLAS-1 mission
Geophys. Res. Lett., 20, 523
1993
ATLAS 1

Abrams, M.C., Farmer, C.B., Gunson, M.R., Lowes, L.L., Rinsland, C.P., and Zander, R.
Pressure sensing with high resolution solar absorption spectroscopy
(IN PRESS) Appl. Optics
1994
ATLAS 1, ATLAS 2

Abrams, M.C., Toon, G.C., and Schindler, R.A.
A practical example of the correction of Fourier transform spectra for detector nonlinearity
(IN PRESS) Appl. Optics
1994
ATLAS 1, ATLAS 2

Avrett, E.H., Chang, E.S., and Loeser, R.
Modeling the infrared magnesium and hydrogen lines from quiet and active solar regions
(IN PRESS) Infrared Solar Physics
1994
Spacelab 3, ATLAS 1

Boeck, W., Vaughan, O.H., Blakeslee, R., Vonnegut, B., Brook, M., and McKune, J.
Observations of lightning in the stratosphere
(IN PRESS) J. Geophys. Res.
1994
OSTA-1

Brown, L.R., Gunson, M.R., Zander, R., and Toth, R.
The 1994 ATMOS line parameter compilation
(IN PRESS) Appl. Optics
1994
ATLAS 1, ATLAS 2

Atmospheric Science

Chang, E.S., Avrett, E.H., Mauas, P.J., Noyes, R.W., and Loeser, R.
Non-LTE effects on Mg I line profiles in the infrared solar spectrum
(IN PRESS) Infrared Solar Physics
1994
Spacelab 3, ATLAS 1

Gunson, M.R., Abrams, M.C., Lowes, L.L., Mahieu, E., Zander, R., Rinsland, C.P., Ko, M.K.W., Sze, N-D., and Weisenstein, D.K.
Increase in levels of stratospheric chlorine loading between 1985-1992
(IN PRESS) Geophys. Res. Lett.
1994
Spacelab 3, ATLAS 1

Irion, F.W., Brown, M., Toon, G.C., and Gunson, M.R.
Increase in atmospheric column of $CHClF_2$ (HCFC-22) over southern California from 1985-1990
Geophys. Res. Lett., 99, 1723-1726
1994
Spacelab 3

Rinsland, C.P., Gunson, M.R., Abrams, M.C., Lowes, L.L., Zander, R., Mahieu, E., Goldman, A., Ko, M.K.W., Weisenstein, D.W., and Sze, N-D.
Heterogeneous conversion of N_2O_5 to HNO_3 in the post Mt. Pinatubo eruption tropical stratosphere
J. Geophys. Res., 99, 8213-8219
1994
ATLAS 1, ATLAS 2

Rinsland, C.P., Gunson, M.R., Abrams, M.C., Zander, R., Mahieu, E., Goldman, A., Ko, M.K.W., Rodriguez, J.M., and Sze, N-D.
Profiles of stratospheric chlorine nitrate ($ClONO_2$) from ATMOS/ATLAS 1 infrared solar occultation spectra
(IN PRESS) Geophys. Res. Lett.
1994
ATLAS 1

Rinsland, C.P., Yue, G.K., Gunson, M.R., Zander, R., and Abrams, M.C.
Mid-infrared extinction by sulfate aerosols from the Mt. Pinatubo eruption
(IN PRESS) J. Quant. Spectrosc. and Rad. Trans.
1994
ATLAS 1, ATLAS 2

Stiller, G.P., Gunson, M.R., Lowes, L.L., Abrams, M.C., Raper, O.F., Zander, R., and Rinsland, C.P.
Stratospheric and mesospheric pressure-temperature profiles from the rotational analysis of CO_2 lines of ATMOS/ATLAS 1 observations
(IN PRESS) J. Geophys. Res.
1994
ATLAS 1

Tinsley, B.A., Rohrbaugh, R.P., Ishimoto, M., Torr, M.R., and Torr, D.G.
Middle and low latitude emissions from energetic neutral atom precipitation seen from ATLAS 1 under quiet magnetic conditions
(IN PRESS) J. Geophys. Res.
1994
ATLAS 1

Torr, D.G., Morgan, M.F., Chang, T., Fennelly, J.A., and Richards, P.G.
Preliminary results from the Imaging Spectrometric Observatory flown on ATLAS 1
AGU Monograph
1994
ATLAS 1

Torr, M.R.
ATLAS-1 and middle atmosphere global change
Adv. Space Res., 14, 189
1994
ATLAS 1

Torr, M.R.
The ATLAS-1 mission
Adv. Space Res., 14, 243
1994
ATLAS 1

Torr, M.R., and Torr, D.G.
A compact imaging spectrograph for broadband spectral simultaneity
(IN PRESS) Appl. Optics
1994
Spacelab 1, ATLAS 1

Torr, M.R., and Torr, D.G.
A compact imaging spectrograph for broadband spectral simultaneity
(IN PRESS) Appl. Optics
1994
Spacelab 1, ATLAS 1

Torr, M.R., Torr, D.G., Chang, T., Richards, P., and Germany, G.
The N_2 Lyman Birge Hopfield dayglow from ATLAS 1
J. Geophys. Res., 99, 21397
1994
ATLAS 1

Torr, M.R., Torr, D.G., Chang, T., Richards, P., Swift, W., and Li, N.
Thermospheric nitric oxide from the ATLAS 1 and Spacelab 1 missions
(IN PRESS) J. Geophysic. Res.
1994
Spacelab 1, ATLAS 1

Zander, R., Rinsland, C.P., Mahieu, E., Gunson, M.R., Abrams, M.C., and Ko, M.K.W.
Increase of carbonyl fluoride (COF_2) in the stratosphere and its contribution to the 1992 budget of inorganic fluorine in the upper stratosphere
(IN PRESS) Geophys. Res. Lett.
1994
Spacelab 3, ATLAS 1, ATLAS 2

EARTH OBSERVATIONS

Earth Observations

Elachi, C.
Spaceborne imaging radar: Geologic and oceanographic applications
Science, 209, 1073-1082
1980
OSTA-1

Elachi, C.
Radar images from space
Scientific American, 54-61
1982
OSTA-1

Elachi, C., Breed, C., Brown, W.E., Cimino, J.B., Dellwig, L., Dixon, T., England, A., Evans, D., Ford, J., MacDonald, H., Martin-Kaye, P., Masursky, H., McCauley, J.F., Sabins, F., Saunders, R.S., and Schaber, G.
Shuttle Imaging Radar (SIR-A) experiment: Preliminary results
Science, 218(4576), 996-1003
1982
OSTA-1

Elachi, C., Brown, W.E., Cimino, J.B., Dixon, T., Evans, D.L., Ford, J.P., Saunders, R.S., Breed, C., Masursky, H., McCauley, J.F., Schaber, G.G., Dellwig, L., England, A., MacDonald, H., Martin-Kaye, P., and Sabins, F.
Shuttle Imaging Radar experiment
Science, 218(4576), 1004-1020
1982
OSTA-1

McCauley, J.F., Schaber, G.G., Breed, C.S., Grolier, M.J., Haynes, C.V., Issawi, B., Elachi, C., and Blom, R.
Subsurface valleys and geoarcheology of the eastern Sahara revealed by Shuttle radar
Science, 218 (4576), 1004-1020
1982
OSTA-1

Rebillard, P., and Evans, D.L.
Analysis of co-registered Landsat, Seasat, and SIR-A images of varied terrain types
Geophys. Res. Lett., 10(4), 277-280
1983
OSTA-1

Sabins, F.
Geologic interpretation of Space Shuttle radar images of Indonesia
Am. Assoc. Petrol. Geol. Bull., 67, 2076-2099
1983
OSTA-1

Elachi, C., Roth, L.E., and Schaber, G.G.
Spaceborne radar subsurface imaging in hyperarid regions
IEEE Trans. Geosci. Remote Sens., GE-22(4), 383-388
1984
OSTA-3

Elachi, C., Cimino, J.B., and Granger, J.B.
Remote sensing of the Earth with spaceborne imaging radars
In *Monitoring Earth's Ocean, Land, and Atmosphere from Space--Sensors, Systems, and Applications*, ed. A. Schapf, American Institute of Aeronautics and Astronautics, Inc., New York
1985
OSTA-3

Volkert, H.
Kelvin-Helmholz waves about the Inn Basin - a snapshot from Spacelab
Beitr. Phys. Atmosph., 58(1), ISSN 0005-8173/85/01, F. Vieweg Verlags-GmbH
1985
Spacelab 1

Berlin, G.L., Tarabzouni, M.A., Al-Naser, A.H., Sheikho, K.M., and Larson, R.W.
SIR-B subsurface imaging of a sand-buried landscape, Al Labbah Plateau, Saudi Arabia
IEEE Trans. Geosci. Remote Sens., GE-24(4), 595-602
1986
OSTA-3

Cimino, J., Brandani, A., Casey, D., Rabassa, J., and Wall, S.D.
Multiple incidence angle SIR-B experiment over Argentina: Mapping of forest units
IEEE Trans. Geosci. Remote Sens., 24, 498-509
1986
OSTA-3

Dobson, M.C., and Ulaby, F.T.
Active microwave soil moisture research
IEEE Trans. Geosci. Remote Sens., GE-24(1), 23-26
1986
OSTA-3

Dobson, M.C., and Ulaby, F.T.
Preliminary evaluation of the SIR-B response to soil moisture, surface roughness, and crop canopy cover
IEEE Trans. Geosci. Remote Sens., GE-24(4), 453-461
1986
OSTA-3

Dobson, M.C., Ulaby, F.T., Brunfeldt, D.R., and Held, D.N.
External calibration of SIR-B imagery with area-extended and point targets
IEEE Trans. Geosci. Remote Sens., GE-24(4), 453-461
1986
OSTA-3

Domik, G., Leberl, F., and Cimino, J.B.
Multiple incidence angle SIR-B experiment over Argentina: Generation of secondary image products
IEEE Trans. Geosci. Remote Sens., GE-24, 492-497
1986
OSTA-3

Elachi, C., Cimino, J.B., and Settle, M.
Overview of the Shuttle Imaging Radar-B preliminary scientific results
Science, 232, 1511-1516
1986
OSTA-3

Fielding, E.W., Knox, J., Jr., and Bloom, A.L.
SIR-B radar imagery of volcanic deposits in the Andes
IEEE Trans. Geosci. Remote Sens., GE-24(4), 582-589
1986
OSTA-3

Imhoff, M., Story, M., Vermillion, C., Khan, F., and Polcyn, F.
Forest canopy characterization and vegetation penetration assessment with spaceborne radar
IEEE Trans. Geosci. Remote Sens., 24, 535-542
1986
OSTA-3

Kaupp, V.H., Gaddis, L.R., Mouginis-Mark, P.J., Derryberry, B.A., MacDonald, H.C., and Waite, W.P.
Preliminary analysis of SIR-B radar data for recent Hawaii lava flows
Remote Sens. Environ., 20, 283-290
1986
OSTA-3

Keyte, G.E., and Macklin, J.T.
SIR-B observations of ocean waves in the N.E. Atlantic
IEEE Trans. Geosci. Remote Sens., 24, 552-558
1986
OSTA-3

Leberl, F., Domik, G., Raggam, J., Cimino, J., and Kobrick, M.
Multiple incidence angle SIR-B experiment over Argentina: Stereo-radargrammetric analysis
IEEE Trans. Geosci. Remote Sens., GE-24, 482-491
1986
OSTA-3

Leberl, F.W., Domik, G., Raggam, J., and Kobrick, M.
Radar stereomapping techniques and application to SIR-B images of Mt. Shasta
IEEE Trans. Geosci. Remote Sens., 24(4), 473-481
1986
OSTA-3

Lynne, G.J., and Taylor, G.R.
Geological assessment of SIR-B imagery of the Amadeus Basin, N.T. Australia
IEEE Trans. Geosci. Remote Sens., 24(41), 575-581
1986
OSTA-3

Macklin, J.T., and Cordey, R.A.
Ocean wave imaging by synthetic aperture radar: Results from the SIR-B experiment in the N.E. Atlantic
IEEE Trans. Geosci. Remote Sens., 24(27), 28-35
1986
OSTA-3

McCauley, J.F., Breed, C.S., Schaber, G.G., McHugh, W.P., Issawi, B., Haynes, C.V., Grolier, M.J., and El Kilani, A.
Paleodrainages of the eastern Sahara--The radar rivers revisited (SIR-A/B implications for a mid-tertiary trans-African drainage system)
IEEE Trans. Geosci. Remote Sens., 24, 624-648
1986
OSTA-1, OSTA-3

Schaber, G.G., McCauley, J.F., Breed, C.S., and Olhoeft, R.R.
Physical controls on signal penetration and subsurface scattering in the Eastern Sahara
IEEE Trans. Geosci. Remote Sens., 24(4), 603-623
1986
OSTA-3

Ulaby, F.T., and Wilson, E.A.
Microwave attenuation properties of vegetation canopies
IEEE Trans. Geosci. Remote Sens., 24(4), 603-623
1986
OSTA-3

Wang, J.R., Engman, E.T., Shiue, J.C., Ruzek, M., and Steinmeier, C.
The SIR-B observations of microwave backscatter dependence on soil moisture, surface roughness, and vegetation covers
IEEE Trans. Geosci. Remote Sens., 24, 510-516
1986
OSTA-3

Curlander, J.C., Kwok, R., and Pang, S.S.
A post-processing system for automated rectification and registration of spaceborne SAR imagery
Int. J. Remote Sens., 8(4), 621-638
1987
OSTA-3

Dixon, T.H., Stern, R.J., and Hussein, I.M.
Control of Red Sea rift geometry by pre-Cambrian structures
Tectonics, 6(5), 551-571
1987
OSTA-3

Elachi, C.
Introduction to the Physics and Techniques of Remote Sensing
ed. J.A. King, John Wiley and Sons, 413 pp.
1987
OSTA-1, OSTA-3

Imhoff, M.L., Vermillion, C., Story, M., Choudhury, A.M., Gafoor, A., and Polcyn, F.
Monsoon flood boundary delineation and damage assessment with space-borne radar
IEEE Trans. Geosci. Remote Sens., 53, 405-413
1987
OSTA-3

Richards, J.A., Sun, G., and Simonett, D.
L-band radar backscatter modeling of forest stands
IEEE Trans. Geosci. Remote Sens., GE-25, 487-498
1987
OSTA-3

Togliatti, G.
Some results of the Metric Camera (MC) mission-1 on Spacelab
Photogrammetrica, 41, 83-93
1987
Spacelab 1

van Zyl, J.J., Zebker, H.A., and Elachi, C.
Imaging radar polarization signatures: Theory and observation
Radio Sci., 22(4), 529-543
1987
OSTA-1, OSTA-3

Domik, G., Leberl, F., and Cimino, J.
Dependence of image grey values on topography in SIR-B images
Int. J. Remote Sens., 9, 1013-1022
1988
OSTA-3

Elmhorst, A., and Müller, W.
Generation of DTMs with space photographs
Int. Arch. Photogrammetry and Remote Sensing, 27, Part B10
1988
Spacelab 1

Ford, J.P., and Casey, D.J.
Shuttle radar mapping with diverse incidence angles in the rainforests of Borneo
Int. J. Remote Sens., 9, 927-943
1988
OSTA-3

Gabriel, A.K., and Goldstein, R.M.
Crossed orbit interferometry: Theory and experimental results from SIR-B
Int. J. Remote Sens., 9(8), 857-872
1988
OSTA-3

Greeley, R., Lancaster, N., Sullivan, R.J., Saunders, R.S., Theilig, E., Wall, S., Dobrovolski, A.J., White, B.R.J., and Iversen, J.D.
A relationship between radar backscatter and aerodynamic roughness: Preliminary
Geophys. Res. Lett., 15(6), 565-568
1988
SRL-1

Jacobson, K., and Müller, W.
Evaluation of space photographs
Int. J. Remote Sens., 9, (10 and 11)
1988
Spacelab 1

Konecny, G., et al.
Comparison of high resolution satellite imagery for mapping
Int. Arch. Photogrammetry and Remote Sensing, 27, Part B10
1988
Spacelab 1

McHugh, W.P., McCauley, J.F., Haynes, C.V., Breed, C.S., and Schaber, G.G.
Paleorivers and geoarcheology in the Southern Egyptian Sahara
Geoarcheology, 3, 1-40
1988
OSTA-3

Wall, S.D., and Curlander, J.C.
Radiometric calibration analysis of SIR-B imagery
Int. J. Remote Sens., 9(5), 891-906
1988
OSTA-3

Gaddis, L.P., Mouginis-Mark, P.J., Singer, R., and Kaupp, V.
Geologic analysis of Shuttle Imaging Radar (SIR-B) data of Kilauea Volcano, Hawaii
Geol. Soc. America Bulletin, 101, 317-332
1989
OSTA-3

McHugh, W.P., Breed, C.S., Schaber, G.G., and McCauley, J.F.,
Neolithic adaptation and the Holocene functioning of tertiary paleodrainages in southern Egypt and northern Sudan
Antiquity, 63, 320-336
1989
OSTA-3

McHugh, W.P., Breed, C.S., Schaber, G.G., McCauley, J.F., and Szabo, B.J.
Acheulian sites along the "radar rivers," southern Egyptian Sahara
J. Field Arch., 15, 361-379
1989
OSTA-3

van Zyl, J.J.
Unsupervised classification of scattering behavior using radar polarimetry data
IEEE Trans. Geosci. Remote Sens., 27(1), 36-45
1989
OSTA-1, OSTA-3

Elachi, C., Kuga, Y., McDonald, K.C., Sarabanki, K., Senior, T.B.A., Ulaby, F.T., van Zyl, J.J., Whitt, M.W., and Zebker, H.A.
Radar Polarimetry for Geoscience Applications
eds. F.T. Ulaby and C. Elachi, Artech House, Inc., 364 pp.
1990
OSTA-1, OSTA-3

Evans, D.L., van Zyl, J.J., and Burnette, C.F.
Incorporation of polarimetric radar images into multisensor data sets
IEEE Trans. Geosci. Remote Sens., 28(5), 932-939
1990
SRL-1

Gaddis, L.R., Mouginis-Mark, P.J., and Hayashi, J.N.
Lava flow surface textures: SIR-B radar image texture, field observations, and terrain measurements
Photogram. Eng. Remote Sensing, 56(2), 211-224
1990
OSTA-3

Ulaby, F.T., Sarabanki, K., McDonald, K., Whitt, M., and Dobson, M.C.
Michigan Microwave Canopy Scattering Model (MIMICS)
Int. J. Remote Sens., 11, 1223-1253
1990
OSTA-3

van Zyl, J.J., and Zebker, H.
Imaging radar polarimetry
In *Radar Polarimetry: Progress in Electromagnetic Research* , Vol. 3, ed. J.A. Kong, Elsevier Science Publishing Co., 520
1990
OSTA-1, OSTA-3

Beal, R.C., Gerlin, T.W., Monaldo, F.M., and Tilley, D.G.
Measuring ocean waves from space: 1978 - 1988
Int. J. Remote Sens., 12, 1713-1722
1991
OSTA-3

Denos, M.
A pyramidal scheme for stereo matching SIR-B imagery
Int. J. Remote Sens., 13, 387-392
1992
OSTA-3

Dubois, P.C., Evans, D., Freeman, A., and van Zyl, J.
Approach to derivation of SIR-C science requirements for calibration
IEEE Trans. Geosci. Remote Sens., 30, 1145-1149
1992
SRL-1

Freeman, A.
SAR calibration: An overview
IEEE Trans. Geosci. Remote Sens., 30(6), 1107-1121
1992
SRL-1

Horgan, G.W., Glasbey, C.A., Lopez Soria, S., Cuevas Gozalo, J.N., and Gonzales, A.F.
Land-use classification in Central Spain using SIR-A and MSS imagery
Int. J. Remote Sens., 15, 2839-2848
1992
OSTA-1

Issawi, B., and McCauley, J.F.
The Cenozoic rivers of Egypt: The Nile problem
In *The Followers of Horus*, eds. B. Adams and R. Friedman, Oxbow Press, Oxford, England
1992
OSTA-3

Miranda, F.P., MacDonald, J.A., and Carr, J.R.
Application of the semivariogram textural classifer (STC) for vegetation discrimination using SIR-B data of Borneo
Int. J. Remote Sens., 13(12), 2349-2354
1992
OSTA-3

Davis, P.A., Breed, C.S., McCauley, J.F., and Schaber, G.G.
Surficial geology of the Safsaf region, south-central Egypt, derived from remote sensing and field data
Remote Sens. Environ., 46, 183-203
1993
OSTA-3

Evans, D.L., Elachi, C., Stofan, E.R., Holt, B., Way, J., Kobrick, M., Vogt, M., Wall, S., van Zyl, J., Schier, M., Ottl, H., and Pampaloni, P.
The Shuttle Imaging Radar-C and X-Band Synthetic Aperture Radar (SIR-C/X-SAR) mission
EOS, Trans. Amer. Geophys. Union, 74(13)
1993
SRL-1

McDonald, K.C., and Ulaby, F.T.
Radiative transfer modeling of discontinuous tree canopies at microwave frequencies
Int. J. Remote Sens., 14(11)
1993
OSTA-3

Wang, Y., and Imhoff, M.L.
Simulated and observed L-HH radar backscatter from tropical mangrove forests
Int. J. Remote Sens., 14, 2819-2828
1993
OSTA-3

Wang, Y., Day, J.L., and Sun, G.
Santa Barbara microwave backscattering model for woodlands
Int. J. Remote Sens., 14, 1477-1493
1993
OSTA-3

Way, J.B., Holt, B., Schier, M., Connors, V., Godwin, L., Jones, T., Campbell, A., Dean, F., Garrett, T., Hartley, H., Moshiashwili, A., Woodring, J., Cooper, E., Mortenson, E., Ouellette, D., Parrott, R., and Rivas, M.,
Earth observations for the Space Radar Laboratory mission: Report on the Student Challenge Awards Project
Geocarto Intl., 9(1), 61-80
1993
SRL-1

LIFE SCIENCES

Brown, A.H., and Chapman, D.K.
Effects of increased gravity force on nutations of sunflower hypocotyls
Plant Physiol., 59, 636-640
1977
Spacelab 1

Brown, A.H., and Chapman, D.K.
Nutations of sunflower seedlings on tilted clinostats
Life Sci. and Space Res., 15, 279-283
1977
Spacelab 1

Michels, D.B., and West, J.B.
Distribution of pulmonary ventilation and perfusion during short periods of weightlessness
J. Appl. Physiol., 45(6), 987-998
1978
SLS-1

Chapman, D.K., and Brown, A.H.
Residual nutational activity of the sunflower hypocotyl in simulated weightlessness
Plant and Cell Physiol., 20(2), 473-478
1979
Spacelab 1

Cogoli, A., Valluchi, M., Böhringer, H.R., Vanni, M.R., and Müller, M.
Effect of gravity on lymphocyte proliferation
In *Life Sciences and Space Research*, ed. W.R. Holmqvist, COSPAR, Pergamon Press, Oxford and New York, Vol. XVII, 219-224
1979
Spacelab 1

Cogoli, A., Valluchi, M., Reck, J., Müller, M., Briegleb, W., Cordt, I., and Michel, C.
Human lymphocyte activation is depressed at low g and enhanced at high g
The Physiologist, 22, S29-S30
1979
Spacelab 1

Johnston, R.S., Bush, W.H., Rummel, J.A., and Alexander, W.C.
Engineering and simulation of life sciences Spacelab experiments
Acta Astronautica, 6, 1239-1249
1979
Spacelab 1

Neubert, J.
Ultrastructural development of the vestibular system under conditions of simulated weightlessness
Aviat. Space Environ. Med., October, 1058-1061
1979
D1

Nixon, J.V., Murray, R.G., Bryant, C., Johnson, R.L., Mitchell, J.H., Holland, O.B., Gomez-Sanchez, C., Vergne-Marini, P., and Blomqvist, C.G.
Early cardiovascular adaptation to simulated zero gravity
J. Appl. Physiol., 46(3), 541-548
1979
Spacelab 1

Ross, M.D., and Williams, T.J.
Otoconial complexes as ion reservoirs in endolymph
The Physiologist, 22(6, Suppl.), 63-64
1979
Spacelab 1

Blomqvist, C.G., Nixon, J.V., Johnson, R.L., and Mitchell, J.H.
Early cardiovascular adaptation to zero gravity simulated by head-down tilt
Acta Astronautica, 7(4/5), 543-553
1980
Spacelab 1

Chapman, D.K., Venditti, A.L., and Brown, A.H.
Gravity functions of circumnutation by hypocotyls of Helianthus annuus in simulated hypogravity
Plant Physiol., 65, 533-536
1980
Spacelab 1

Cogoli, A., and Tschopp, A.
Effect of spaceflight on lymphocyte stimulation
The Physiologist, 23, S63-S66
1980
Spacelab 1

Cogoli, A., Valluchi-Morf, M., Müller, M., and Briegleb, W.
The effect of hypogravity on human lymphocyte activation
Aviat. Space Environ. Med., 51, 29-34
1980
Spacelab 1

Poliner, L.R., Dehmer, G.J., Lewis, S.E., Parkey, R.W., Blomqvist, C.G., and Willerson, J.T.
Left ventricular performance in normal subjects: A comparison of the responses to exercise in the upright and supine positions
Circulation, 62(3), 528-534
1980
SL-1

Raven, P.B., Saito, M., Gaffney, F.A., Schutte, J., and Blomqvist, C.G.
Interactions between surface cooling and LBNP-induced central hypovolemia
Aviat. Space Environ. Med., 51(5), 497-503
1980
SL-1

Ross, M.D., Pote, K.G., Cloke, P.L., and Corson, C.
In vitro $^{45}Ca^{++}$ uptake and exchange by otoconial complexes in high and low K^+/Na^+ fluids
The Physiologist, 23(6, Suppl.), S219-S230
1980
SLS-1

Salamat, M.S., Ross, M.D., and Peacor, D.R.
Otoconial formation in the fetal rat
Ann. Otol. Rhinol. Laryngol., 89(3), 229-238
1980
SLS-1

Brown, A.H., and Chapman, D.K.
Comparative physiology of plant behaviour in simulated hypogravity
Ann. Bot., 47, 225-228
1981
Spacelab 1

Brown, A.H., and Chapman, D.K.
Initiation of nutation in sunflower hypocotyls
Adv. Physiol. Sci., 19, 257-260
1981
Spacelab 1

Chapman, D.K., and Brown, A.H.
Circumnutation augmented in clinostatted plants by a tactile stimulus
Adv. Space Res., 1, 103-107
1981
Spacelab 1

Cogoli, A.
Effect of spaceflight on human lymphocyte activation
Adv. Physiol. Sci. Vol. 19, *Gravitational Physiology*, eds. J. Hideg, and O. Gazenko, Pergamon Press- Akadémiai Kiadó, Budapest, 87-94
1981
Spacelab 1

Cogoli, A.
Hematological and immunological changes during spaceflight
Acta Astronautica, 8, 995-1002
1981
Spacelab 1

Farrell, R.M., Cramer, D.B., and Reid, D.H.
Life science research in space: The Spacelab era
Aerosp. Med. Assoc., 61-62
1981
Spacelab 1

Gaffney, F.A., Tahl, E.R., Taylor, W.F., Bastian, B.C., Weigelt, J.A., Atkins, J.M., and Blomqvist, C.G.
Hemodynamic effects of Medical Anti-shock Trousers (MAST garment)
J. Trauma, 21(11), 931-937
1981
Spacelab 1, SLS-1, USML-1

Neubert, J.
Gravity sensing system formation in tadpoles (Rana temporaria) developed in weightlessness simulation
The Physiologist, 24(6 Suppl), 81-82
1981
D1

Raven, P.B., Pape, G., Taylor, W.F., Gaffney, F.A., and Blomqvist, C.G.
Hemodynamic changes during whole body surface cooling and lower negative body pressure
Aviat. Space Environ. Med., 52(7), 387-391
1981
Spacelab 1

Ross, M.D., Pote, K.G., Rarey, K.E., and Verma, L.M.
Microdisc gel electrophoresis in sodium dodecyl sulfate of organic material from rat otoconial complexes
Ann. NY Acad. Sci., 374, 808-819
1981
SLS-1

Tschopp, A., Briegleb, W., and Cogoli, A.
Response of cultured cells to hyper- and hypogravity
The Physiologist, 24, S109-S110
1981
Spacelab 1

Bock, O.L., and Oman, C.M.
Dynamics of subjective discomfort in motion sickness as measured with a magnitude estimation method
Aviat. Space Environ. Med., 53(8), 773-777
1982
Spacelab 1

Briegleb, W., Neubert, J., Schatz, A., Hordinsky, J.R., and Cogoli, A.
Cell morphological, ontogenic, and genetic reactions to 0-g simulations and hyper-g
Acta Astronautica, 9, 47-50
1982
Spacelab 1

Cogoli, A., and Tschopp, A.
Biotechnology in space laboratories
Adv. Biochem. Eng., 22, 1-50
1982
Spacelab 1

Cogoli, A., and Tschopp, A.
Gravity and living organisms in vitro
Trends Pharmacol. Sci., 3, 403-407
1982
Spacelab 1

Cowles, J.R., Scheld, H.W., Peterson, C., and LeMay, R.
Lignification in young plants exposed to the near-zero gravity of space flight
The Physiologist, 25, S129-130
1982
OSS-1

Gaffney, F.A., Bastian, B.C., Thal, E.R., Atkins, J.M., and Blomqvist, C.G.
Passive leg raising does not produce a significant or sustained autotransfusion effect
J. Trauma, 22(3), 190-193
1982
Spacelab 1

Mori, S., Takabayashi, A., and Mitarai, G.
Applicability of the silicone membrane as a lung for a fish incubator in space life science research
Environ. Med., 26, 59-65
1982
Spacelab J

Neubert, W.M., Banks, P.M., Brueckner, G.E., Chipman, E.G., Cowles, J., McDonnell, M.A.M., Novick, R., Ollendorf, S., Shawhan, S.D., Triolo, J.J., and Weinberg, J.L.
Science on the Space Shuttle
Nature, 296, 193-197
1982
OSS-1

Nichol, G.M., Michels, D.B., and Guy, H.J.B.
Phase V of the single-breath washout test
J. Appl. Physiol., 52(1), 34-43
1982
SLS-1

Ross, H.E., and Reschke, M.F.
Mass estimation and discrimination during brief periods of zero gravity
Perception and Psychophysics, 31, 429-436
1982
Spacelab 1

Ross, M.D.
Striated organelles in hair cells of rat inner ear maculas: Description and implication for transduction
The Physiologist, 25(6, Suppl.), S113-S114
1982
SLS-1

Scano, A.
Simple technique to evaluate on the ground the energetic expenditure of physical exercise carried out in weightlessness
Acta Astronautica, 9, 745
1982
Spacelab 1

White, R.J., Leonard, J.I., Rummel, J.A., and Leach, C.S.
A systems approach to the physiology of weightlessness
J. Med. Syst., 6(4), 343-358
1982
Spacelab 1

Willson, J.
Apple to Earth
Microcomputing, March, 30-35
1982
Spacelab 1

Blomqvist, C.G.
Cardiovascular adaptation to weightlessness
Med. Sci. Sports Exerc., 15(5), 428-431
1983
SLS-1

Blomqvist, C.G., and Stone, H.L.
Cardiovascular adjustments to gravitational stress
In *Handbook of Physiology*, eds. J.T. Shepard and F.M. Abboud, Oxford University Press, New York, 1025-1063
1983
SLS-1

Blomqvist, C.G., Gaffney, F.A., and Nixon, J.V.
Cardiovascular responses to head-down tilt in young and middle-aged men
The Physiologist, 26(6, Suppl.), S81-S82
1983
SLS-1

Brown, A.H., and Chapman, D.K.
The first plants to fly on the Shuttle
The Physiologist, 25(Suppl.), 5-8
1983
Spacelab 1

Cowles, J.R.
Lignin
McGraw-Hill Yearbook of Science and Technology
1983
OSS-1

Gaffney, F.A., Lane, L.B., Pettinger, W., and Blomqvist, C.G.
Effects of long-term clonidine administration on the hemodynamic and neuroendocrine postural responses of patients with dysautonomia
Chest, 83(Suppl.), 436-438
1983
SLS-1

Jee, W.S.S., Wronski, T.J., Morey, E.R., and Kimmel, D.B.
Effects of spaceflight on trabecular bone in rats
Am. J Physiol., 244, R310-R314
1983
SLS-1

Leonard, J.I., Leach, C.S., and Rambaut, P.C.
Quantitation of tissue loss during prolonged space flight
Am. J. Clin. Nutr., 38, 667-679
1983
Spacelab 1

Mitarai, G., Mori, S., Takabayashi, A., and Tagaki, S.
Postural control and cerebellar activity in normal and labyrinthectomized carps, and a fish holding device for Spacelab experiments
Environ. Med., 27, 51-59
1983
Spacelab J

Nixon, J.V., Saffer, S.I., Lipscomb, K., and Blomqvist, C.G.
Three-dimensional echoventriculography
Am. Heart. J., 106(3), 435-443
1983
SLS-1

Riley, D.A., and Ellis, S.
Research on the adaptation of skeletal muscle to hypogravity: Past and future directions
Adv. Space Res., 3(9), 191-197
1983
SLS-1

Ross, M.D., and Bourne, C.
Interrelated striated elements in vestibular hair cells of rats
Science, 220, 622-624
1983
SLS-1

Tschopp, A., and Cogoli, A.
Hypergravity promotes cell proliferation
Experientia, 39, 1323-1329
1983
Spacelab 1

Ubbels, G.A., Brom, T.G., Willemsen, H.P., and van Nuenen, J.J.H.
The role of gravity in the establishment of the dorso-ventral axis in the developing amphibian embryo
In *Space Biology with Emphasis on Cell and Developmental Biology*; eds. N. Longdon, and O. Melita, ESA Science and Technology Publications, 77-82
1983
D1

Wronski, T.J., and Morey, E.R.
Effect of spaceflight on periosteal bone formation in rats
Am. J. Physiol., 244, R305-R309
1983
SLS-1

Young, L.R., Crites, T.A., and Oman, C.M.
Brief weightlessness and tactile clues influence visually induced roll
Adv. Otolaryngol., 30, 230-234
1983
Spacelab 1

Brodie, E.E., and Ross, H.E.
Sensorimotor mechanisms in weight discrimination
Perception and Psychophysics, 36, 477-481
1984
Spacelab 1

Brown, A.H., and Chapman, D.K.
A test to verify the biocompatibility of a method for plant culture in a microgravity environment
Ann. Bot., 54(Suppl. 3), 19-31
1984
Spacelab 1

Brown, A.H., and Chapman, D.K.
Circumnutation observed without a significant gravitational force in spaceflight
Science, 225, 230-232
1984
Spacelab 1

Bücker, H., Baltschukat, K., Beaujean, R., Bonting, S.L., Delpoux, M., Enge, W., Facius, R., Francois, H., Graul, E.H., Heinrich, W., Horneck, G., Kranz, A.R., Pfohl, R., Planel, H., Portal, G., Reitz, G., Rüther, W., Schäfer, M., Schopper, E., and Schott, J.U.
Advanced Biostack: Experiment 1 ES 027 on Spacelab 1
Adv. Space Res., 4(10), 83
1984
Spacelab 1

Bücker, H., Horneck, G., Facius, R., Reitz, G., Schäfer, M., Schott, J.U., Beaujean, R., Enge, W., Schopper, E., Heinrich, W., Beer, J., Wiegel, B., Pfohl, R., Francois, H., Portal, G., Bonting, S.L., Graul, E.H., Rüther, W., Kranz, A.R., Bork, U., Koller-Lambert, K., Kirchheim, B., Starke, M.E., Planel, H., and Delpoux, M.
Radiobiological advanced Biostack experiment
Science, 225, 222-224
1984
Spacelab 1

Buckey, J.C., Beattie, J.M., Gaffney, F.A., Nixon, J.V., and Blomqvist, C.G.
Simplified right ventricular volume algorithm using one digitized view and transducer tilt angle
Comput. Cardiol., 399-402
1984
SLS-1

Cogoli, A.
Bioprocessing in space
In *Progress Worldwide*, ed. Th. Perdios, Association Diplomés des EPF, 31-37
1984
Spacelab 1

Cogoli, A.
Coltiviamo cellule nel cosmo per fabbricare medicine
Corriere della sera, Corriere della Scienze nr. 28, 11
1984
Spacelab 1

Cogoli, A., Tschopp, A., and Fuchs-Bislin, P.
Cell sensitivity to gravity
Science, 225, 228-230
1984
Spacelab 1

Cowles, J.R., Scheld, H.W., LeMay, R., and Peterson, C.
Growth and lignification in seedlings exposed to 8 days of microgravity
Ann. Bot., 54, 33-48
1984
OSS-1

Cowles, J.R., Scheld, H.W., Peterson, C., and LeMay, R.
Growth and development of plants flown on the STS-3 Space Shuttle mission
Acta Astronautica, 11, 275-277
1984
OSS-1

Garriott, O.K., Parker, R.A., Lichtenberg, B.K., and Merbold, U.
Payload crew members' view of Spacelab operations
Science, 225(4658), 165-167
1984
Spacelab 1

Horneck, G., Bücker, H., Dose, K., Martens, K.D., Bieger, A., Mennigmann, H.D., Reitz, G., Requardt, H., and Weber, P.
Microorganisms and biomolecules in space environment, experiment ES 029 on Spacelab 1
Adv. Space Res., 4(1), 19-27
1984
Spacelab 1

Horneck, G., Bücker, H., Dose, K., Martens, K.D., Mennigmann, H.D., Reitz, G., Requardt, H., and Weber, P.
Photobiology in space: An experiment on Spacelab 1
Origins of Life, 14, 825-832
1984
Spacelab 1

Horneck, G., Bücker, H., Dose, K., Mennigmann, H.D., Martens, K.D., Reitz, G., Requardt, H., and Weber, P.
Response of Bacillus subtilis spores to UV-irradiation and vacuum
Int. J. Radiat. Biol., 45, 409 (Abstract)
1984
Spacelab 1

Horneck, G., Bücker, H., Reitz, G., Requardt, H., Dose, K., Martens, K.D., Mennigmann, H.D., and Weber, P.
Microorganisms in the space environment
Science, 225, 226-228
1984
Spacelab 1

Kirsch, K.A., Röcker, L., Gauer, O.H., Krause, R., Leach, C., Wicke, H-J., and Landry, R.
Venous pressure in man during weightlessness
Science, 225(4658), 218-219
1984
Spacelab 1

Leach, C.S., and Johnson, P.C.
Influence of spaceflight on erythrokinetics in man
Science, 225, 216-218
1984
Spacelab 1

Lichtenberg, B.K.
A new breed of space traveler
New Scientist, 23 August, 8-9
1984
Spacelab 1

Money, K.E., Watt, D.G., and Oman, C.M.
Preflight and postflight motion sickness testing of the Spacelab 1 crew
In *Motion Sickness: Mechanisms, Prediction, Prevention and Treatment*, AGARD CP-372, 33-1--33-8
1984
Spacelab 1

Okazaki, S., Tamura, Y., Hatano, T., and Matsui, N.
Hormonal disturbances of fluid-electrolyte metabolism under altitude exposure in man
Aviat. Space Environ. Med., 55 20-205
1984
Spacelab J

Oman, C.M.
Why do astronauts suffer space sickness?
New Scientist, 23 August, 10-13
1984
Spacelab 1

Oman, C.M., Lichtenberg, B.K., and Money, K.E.
Space motion sickness monitoring experiment: Spacelab 1
In *Motion Sickness: Mechanisms, Prediction, Prevention and Treatment*, AGARD CP-372, 35-1--35-21
1984
Spacelab 1

Quadens, O., and Green, H.
Eye movements during sleep in weightlessness
Science, 225, 221-222
1984
Spacelab 1

Raven, P.B., Rohm-Young, D., and Blomqvist, C.G.
Physical fitness and cardiovascular response to lower body negative pressure
J. Appl. Physiol., 56(1), 138-144
1984
SLS-1

Reschke, M.F., Anderson, D.J., and Homick, J.L.
Vestibulo-spinal reflexes as a function of microgravity
Science, 225, 212-214
1984
Spacelab 1

Ross, H.
Dexterity is just a fumble in space
New Scientist, No. 1418, 16-17
1984
Spacelab 1

Ross, H., Brodie, E., and Benson, A.
Mass discrimination during prolonged weightlessness
Science, 225, 219-221
1984
Spacelab 1

Ross, H.E.
Was Spacelab a success?
New Scientist, No. 1394, 37-38
1984
Spacelab 1

Ross, M.D.
The influence of gravity on structure and function of animals
Adv. Space Res., 4(12), 305-314
1984
SLS-1

Ross, M.D., and Pote, K.G.
Some properties of otoconia
Phil. Trans. R. Soc. Lond., B304, 445-452
1984
SLS-1

Scano, A., and Rispoli, E.
(IN ITALIAN WITH ENGLISH SUMMARY)
Balistocardiografia tridimensionale in assensza di peso
Min. Aerosp., 16, 661
1984
Spacelab 1

Tschopp, A., and Cogoli, A.
Low gravity lowers immunity to diseases
New Scientist, 23 August, 36
1984
Spacelab 1

Tschopp, A., Cogoli, A., Lewis, M. L., and Morrison, D.R.
Bioprocessing in space: Human cells attach to beads in microgravity
J. Biotechnol., 1, 287-293
1984
Spacelab 1

Ubbels, G.A., and Brom, T.G.
Cytoskeleton and gravity at work in the establishment of dorso-ventral polarity in the egg of Xenopus laevis
Adv. Space Res., 4(12), 9-18
1984
D1

von Baumgarten, R., Benson, A., Berthoz, A., Brandt, T.H., Brandt, U., Bruzek, W., Dichgans, J., Kass, J., Probst, T.H., Scherer, H., Vieville, T., Vogel, H., and Wetzig, J.
Effects of rectilinear acceleration and optokinetic and caloric stimulation in space
Science, 225, 208-212
1984
Spacelab 1

von Baumgarten, R., Benson, A., Berthoz, A., Brandt, T.H., Brandt, U., Bruzek, W., Dichgans, J., Kass, J., Probst, T.H., Scherer, H., Thumler, R., Vieville, T., Vogel, H., and Wetzig, J.
The European vestibular experiments of the Spacelab 1 mission
In *Results of Space Experiments in Physiology and Medicine*, AGARD CP-377, 1A-1--1A-2
1984
Spacelab 1

Voss, E.W.
Prolonged weightlessness and humoral immunity
Science, 225, 214-215
1984
Spacelab 1

Young, L.R.
Perception of the body in space: mechanisms
In *Handbook of Physiology--The Nervous System III*, ed. I.D. Smith, American Psychological Society
1984
Spacelab 1

Young, L.R.
Tilted astronauts reveal the brain's balancing act
New Scientist, 23 August
1984
Spacelab 1

Young, L.R., Oman, C.M., Watt, D.G.D., Money, K.E., and Lichtenberg, B.K.
Spatial orientation in weightlessness and readaptation to Earth's gravity
Science, 225(4658), 205-208
1984
Spacelab 1

Arieli, R., and Farhi, L.E.
Gas exchange in tidally ventilated and non-steadily perfused lung model
Respir. Physiol., 60, 295-309
1985
SLS-1

Boutellier, U.R.S., Arieli, R., and Farhi, L.E.
Ventilation and CO_2 response during +Gz acceleration
Respir. Physiol., 62, 141-151
1985
SLS-1

Brodie, E.E., and Ross, H.E.
Jiggling a lifted weight does aid discrimination
Am. J. Psychol., 98, 469-471
1985
Spacelab 1

Buckey, J.C., Sweeney, F.M., Kim, L.T., Beattie, J.M., Nixon, J.V., Gaffney, F.A., and Blomqvist, C.G.
Stroke volume in-vivo using multiple 2D echo views from one echo window
Comput. Cardiol., 293-296
1985
SLS-1

Buckey, J.C., Watenpaugh, D.E., Kim, L.T., Smith, M.L., Gaffney, F.A., and Blomqvist, C.G.
Initial experience with a new plethysmograph for zero-g use
The Physiologist, 28(6, Suppl.), S145-S146
1985
SLS-1

Cogoli, A.
Gravity sensing in animal cells
The Physiologist, 28, S47-S50
1985
Spacelab 1

Cogoli, A., and Tschopp, A.
Lymphocyte reactivity during spaceflight
Immunology Today, 6, 1-4
1985
Spacelab 1

Dunn, C.D.R., Johnson, P.C., Lange, R.D., Perez, L., and Nessel, R.
Regulation of hematopoiesis in rats exposed to antiorthostatic, hypokinetic/hypodynamia: I. Model description
Aviat. Space Environ. Med., 56(5), 419-426
1985
SLS-1

Ellis, S., Giometti, C.S., and Riley, D.A.
Changes in muscle protein composition induced by disuse atrophy: Analysis by two-dimensional electrophoresis
The Physiologist, 28(6, Suppl.), S159-S160
1985
SLS-1

Gaffney, F.A., Nixon, J.V., Karlsson, E.S., Campbell, W., Dowdy, A.B.C., and Blomqvist, C.G.
Cardiovascular deconditioning produced by 20-hour bedrest with head-down tilt (-5°) in middle-aged men
Am. J. Cardiol., 56, 634-638
1985
SLS-1

Horneck, G., and Bücker, H.
Can microorganisms withstand the multistep trial of interplanetary transfer? Considerations and experimental approaches
Origins of Life, 16, 414-415 (Abstract)
1985
Spacelab 1

Horneck, G., Bücker, H., and Reitz, G.
Bacillus subtilis spores on Spacelab 1: Response to solar UV-radiation in free space
In *Fundamental and Applied Aspects of Bacterial Spores*, eds., G. J. Dring, D. J. Ellas, and G. W. Gould, Academic Press, 241-250
1985
Spacelab 1

Lange, R.D., Andrews, R.B., Gibson, L.A., Wright, P., Dunn, C.D.R., and Jones, J.B.
Hematologic parameters of astrorats flown on SL-3
The Physiologist, 28(6, Suppl.), 195-196
1985
Spacelab 3

Matsui, N., Tamura, Y., Okazaki, S., Sueda, K., and Seo, H.
Adaptation to high altitude--water and electrolyte metabolism and regulating hormones
Environ. Med., 29, 1-14
1985
Spacelab J

Morey-Holton, E.R., and Arnaud, S.B.
Spaceflight and calcium metabolism
The Physiologist, 28(6, Suppl.), S9-S12
1985
SLS-1

Nachtman, R.G., Dunn, C.D.R., Driscoll, T.B., and Leach, C.S.
Methods for repetitive measurements of multiple hematological parameters in individual rats
Lab. Anim. Sci., 505-508
1985
Spacelab 1

Nakamura, T., Ishida, M., Tanaka, S., Ashiki, M., Usui, S., Takagi, S., Takabayashi, A., Mori, S., and Watanabe, S.
Development of monolithic preamplifier for detecting brain waves of swimming carp
Environ. Med., 29, 107-110
1985
Spacelab J

Parker, D.E., Reschke, M.F., Ouyang, L., Arrott, A.P., Lichtenberg, B.K.
Vestibulo-ocular reflex changes following weightlessness and preflight adaptation training
In *Adaptive Processes in Visual and Oculomotor Systems*, eds. E.L. Keller and D.S. Zee, Pergamon, New York, 103-109
1985
Spacelab 1

Riley, D.A., and Fahlman, C.S.
Colchicine-induced differential sprouting of the endplates on fast and slow muscle fibers in rat extensor digitorum longus, soleus, and tibialis anterior muscles
Brain Res., 329, 83-95
1985
Spacelab 3

Riley, D.A., Ellis, S., Slocum, G.R., Satyanarayana, T., Bain, J.L.W., and Sedlak, F.R.
Morphological and biochemical changes in soleus and extensor digitorum muscles of rats orbited in Spacelab 3
The Physiologist, 28(6, Suppl.), S207-S208
1985
Spacelab 3

Roberts, W.E., and Morey, E.R.
Proliferation and differentiation sequence of osteoblast histogenesis under physiological conditions in rat periodontal ligament
Am. J. Anat., 174, 105-118
1985
SLS-1

Ross, H.E.
Mass-discrimination: The development of a low-technology self-test procedure for space experiments
Earth-Orient. Appl. Space Technol., 5(1/2), 95-99
1985
Spacelab 1

Ross, M.D.
Anatomic evidence for peripheral neural processing in mammalian graviceptors
Aviat. Space Environ. Med., 56(4), 338-343
1985
SLS-1

Ross, M.D., Donovan, K.M., and Chee, O.
Otoconial morphology in space-flown rats
The Physiologist, 28(6, Suppl.), 219-220
1985
SLS-1

Scano, A., and Strollo, F.
Ballistocardiographic research in weightlessness
Earth-Orient. Appl. Space Technol., 5, 101
1985
Spacelab 1

Scherer, H., and Clarke, A.H.
The caloric vestibular reaction in space
Acta Otolaryngol., 100, 328-336
1985
Spacelab 1

Spangenberg, D.B.
Jellyfish - special tools for biological research on Earth and in space
Mar. J., No. 4, 3-4
1985
SLS-1

Spangenberg, D.B., Davis, S., and Ross-Clunis, H., III
Effects of clinostat rotation on Aurelia statolith synthesis
The Physiologist, 28(6, Suppl.), 151-152
1985
SLS-1

Tamura, Y., Hatano, T., Okazaki, S., Kanda, K., Seo, H., Sueda, K., Ogawa, K., Matsui, N., Takeuchi, H., and Seki, K.
Alterations in fluid-electrolyte metabolism and related hormones during compression from 1 to 31 ATA heliox atmosphere (SD-V)
Environ. Med., 29, 23-32
1985
Spacelab J

Tixador, R., Richoilley, G., Gasset, G., Planel, H., Moatti, N., Lapchine, L., Enjalbert, L., Raffin, J., Bost, R., Zaloguev, S.N., Bragina, M.P., Moroz, A.F., Antsiferova, N.G., and Kirilova, F.M.,
Preliminary results of Cytos 2 experiment
Acta Astronautica, 12(2), 131-134
1985
D1, IML-1

Tixador, R., Richoilley, G., Gasset, G., Templier, J., Bes, J.C., Moatti, N., and Lapchine, L.
Study of minimal inhibitory concentration of antibiotics on bacteria cultivated in vitro in space (Cytos 2 experiment)
Aviat. Space Environ. Med., 56(8), 748-751
1985
D1, IML-1

Turner, R.T., Bell, N.H., Duvall, P., Bobyn, J.D., Spector, M., Morey-Holton, E., and Baylink, D.J.
Spaceflight results in formation of defective bone
Proc. Soc. Exp. Biol. Med., 180, 544-549
1985
SLS-1

Ubbels, G.A., and Brom, T.G.
Role of gravity in determination of the dorso-ventral axis in the developing embryo of Xenopus laevis
In *Scientific Goals of the German Spacelab Mission D1*; eds. P.R. Sahm, and R. Jansen, Koln, 179-180
1985
D1

Usui, S., Yamada, I., Mori, S., Takabayashi, A., Tagaki, S., Mitarai, G., and Watanabe, S.
Power spectrum analysis of cerebellar activities in the carp
Environ. Med., 29, 99-105
1985
Spacelab J

von Ameln, H., Laniado, M., Röcker, L., and Kirsch, K.A.
Effects of dehydration on the vasopressin response to immersion
J. Appl. Physiol., 58(1), 114-120
1985
Spacelab 1

Watt, D.G.D., Money, K.E., Bondar, R.L., Thirsk, R.B., Garneau, M., and Scully-Power, P.
Canadian medical experiments on shuttle flight 41-G
Can. Aeron. and Space J., 31(3), 215-226
1985
OSTA-3

Young, L.R.
Adaptation to modified otolith input
In *Adaptive Mechanisms in Gaze Control. Facts and Theories*, eds. A. Berthoz, and G. Melvill Jones, Elsevier Science Publishers B. V., 155-162
1985
Spacelab 1

Arieli, R., Boutellier, U., and Farhi, L.E.
Effect of water immersion on cardiopulmonary physiology at high gravity (+Gz)
J. Appl. Physiol., 61(5), 1686-1692
1986
SLS-1

Arrott, A.P., and Young, L.R.
MIT/Canadian vestibular experiments on the Spacelab-1 mission: 6. Vestibular reactions to lateral acceleration following ten days of weightlessness
Exp. Brain Res., 64, 347-357
1986
Spacelab 1

Bechler, B., Cogoli, A., and Mesland, D.
Lymphozyten and schwerkraftempfindlich (Are lymphocytes sensitive to gravitational forces?)
Naturwissenschaften, 73, 400-403
1986
Spacelab 1

Benson, A.J., and Vieville, T.
European vestibular experiments on the Spacelab-1 mission: 6. Yaw axis vestibulo-ocular reflex
Exp. Brain Res., 64, 279-283
1986
Spacelab 1

Berthoz, A., Brandt, T.H., Dichgans, J., Probst, T.H., Bruzek, W., and Vieville, T.
European vestibular experiments on the Spacelab-1 mission: 5. Contribution of the otoliths to the vertical vestibulo-ocular reflex
Exp. Brain Res., 64, 272-278
1986
Spacelab 1

Blomqvist, C.G.
Orthostatic hypotension
Hypertension, 8(8), 722-731
1986
SLS-1

Boutellier, U.R.S., and Farhi, L.E.
A fundamental problem in determining functional residual capacity or residual volume
J. Appl. Physiol., 60(5), 1810-1813
1986
SLS-1

Boutellier, U.R.S., and Farhi, L.E.
Influence of breathing frequency and tidal volume on cardiac output
Respir. Physiol., 66, 123-133
1986
SLS-1

Briegleb, W., Neubert, J., Schatz, A., Klein, T., and Kruse, B.
Survey of the vestibulum and behavior of Xenopus laevis larvae developed during a 7-day space flight
Adv. Space Res., 6(12), 151-156
1986
D1

Bücker, H., and Facius, R.
Radiation protection problems for the space station and approaches to their mitigation
Adv. Space Res., 6(11), 305
1986
D1

Bücker, H., Facius, R., and Reitz, G.
Dosimetric mapping inside BIORACK on D-1
Naturwissenschaften, 73, 425
1986
D1

Bücker, H., Facius, R., Horneck, G., Reitz, G., Graul, E.H., Berger, H., Höffken, H., Rüther, W., Heinrich, W., Beaujean, R., and Enge, W.
Embryogenesis and organogenesis of Carausius morosus under spaceflight conditions
Adv. Space Res., 6(12), 115-124
1986
D1

Bücker, H., Horneck, G., Reitz, G., Graul, E.H., Berger, H., Höffken, H., Rüther, W., Heinrich, W., and Beaujean, R.
Embryogenesis and organogenesis of Carausius morosus under spaceflight conditions
Naturwissenschaften, 73, 433
1986
Spacelab 1, D1

Cogoli, A.
Plädoyer für die bemannte Raumfahrt
Bild der Wissenschaft, 5-1986, 136-143
1986
Spacelab 1

Curthoys, I.S., and Oman, C.M.
Dimensions of the horizontal semicircular duct, ampulla, and utricle in rat and guinea pig
Acta Otolaryngol., 101, 1-10
1986
Spacelab 1

Dunn, C.D.R., Johnson, P.C., and Lange, R.D.
Regulation of hematopoiesis in rats exposed to antiorthostatic hypokinetic/hypodynamia: II. Mechanisms of the "anemia"
Aviat. Space Environ. Med., 57(1), 36-44
1986
SLS-1

Fahlman, C.S., and Riley, D.A.
Colchicine-induced sprouting of the neuromuscular junction in the pigeon extensor digitorum longus muscle
Brain Res., 363, 156-160
1986
SLS-1

Fiedler, P.J., Morey, E.R., and Roberts, W.E.
Osteoblast histogenesis in periodontal ligament and tibial metaphysis during simulated weightlessness
Aviat. Space Environ. Med., 57(12), 1125-1130
1986
SLS-1

Friederici, A.D., and Levelt, W.J.M.
Flight results. Cognitive processes of spatial coordinate assignment - on weighting perceptual cues
Naturwissenschaften, 73, 455-458
1986
D1

Globus, R.K., Bikle, D.D., and Morey-Holton, E.
The temporal response of bone to unloading
Endocrinology, 118(2), 733-742
1986
SLS-1

Globus, R.K., Bikle, D.D., Halloran, B., and Morey-Holton, E.R.
Skeletal response to dietary calcium in a rat model simulating weightlessness
J. Bone Miner. Res., 1(2), 191-197
1986
SLS-1

Halloran, B.P., Bikle, D.D., Wronski, T.J., Globus, R.K., Levens, J.M., and Morey-Holton, E.
The role of 1,25-dihydroxy vitamin D in the inhibition of bone formation induced by skeletal unloading
Endocrinology, 118(3), 948-954
1986
SLS-1

Kass, J.R., and Vogel, H.
Subjective vertical before and after space flight
Adv. Space Res., 6(12), 171-174
1986
Spacelab 1

Kenyon, R.V., and Young, L.R.
MIT/Canadian vestibular experiments on the Spacelab-1 mission: 5. Postural responses following exposure to weightlessness
Exp. Brain Res., 64, 335-346
1986
Spacelab 1

Kirsch, K.A., Röcker, L., von Ameln, H., and Hrynyschyn, K.
The cardiac filling pressure following exercise and thermal stress
Yale J. Biol. Med., 59, 257-265
1986
Spacelab 1

Kirsch, K., Haenel, F., and Röcker, L., with the technical assistance of Wicke, H-J.
Venous pressure in microgravity
Naturwissenschaften, 73, 447-449
1986
Spacelab 1

Lapchine, L., Moatti, N., Gasset, G., Richoilley, G., Templier, J., and Tixador, R.
Antibiotic activity in space
Drugs Exp. Clin. Res., XII(12), 933-938
1986
D1

Leonard, J.I.
Understanding metabolic alterations in space flight using quantitative models: Fluid and energy balance
Acta Astronautica, 13(6/7), 441-457
1986
Spacelab 1

Lorenzi, G., Fuchs-Bislin, P., and Cogoli, A.
Effects of hypergravity on "whole-blood" cultures of human lymphocytes
Aviat. Space Environ. Med., 57, 1131-1135
1986
Spacelab 1

Mennigmann, H.D., and Lange, M.
Growth and differentiation of Bacillus subtilis under microgravity
Naturwissenschaften, 73, 415-417
1986
Spacelab 1

Miyamoto, N., Matsui, N., Tamura, Y., Seo, H., Murata, Y., Kanda, K., and Ohmori, S.
Water and electrolyte metabolism under acute exposure to a simulated high altitude--role of aldosterone and involvement of ANP
Environ. Med., 30, 1-12
1986
Spacelab J

Moatti, N., Lapchine, L., Gasset, G., Richoilley, G., Templier, J., and Tixador, R.
Preliminary results of the "Antibio" experiment
Naturwissenschaften, 73, 413-414
1986
D1

Neubert, J., Briegleb, W., and Schatz, A.
Embryonic development of the vertebrae gravity receptors
Naturwissenschaften, 73, 428-430
1986
D1

Oman, C.M., Lichtenberg, B.K., Money, K.E., and McCoy, R.K.
MIT/Canadian vestibular experiments on the Spacelab-1 mission: 4. Space motion sickness: symptoms, stimuli, and predictability
Exp. Brain Res., 64, 316-334
1986
Spacelab 1

Reitz, G., Bücker, H., Beaujean, R., Enge, W., Facius. R., Heinrich, W., Ohrendorf, T., and Schopper, E.
Dosimetric mapping inside BIORACK
Adv. Space Res., 6(12), 107
1986
D1

Ritts, R.H., Metzger, J.M., Riley, D.A., and Unsworth, B.R.
Models of disuse: A comparison of hindlimb suspension and immobilization
J. Appl. Physiol., 60(6), 1946-1953
1986
SLS-1

Ross, H.E., Brodie, E.E., and Benson, A.J.
Mass-discrimination in weightlessness and readaptation to Earth's gravity
Exp. Brain Res., 64, 358-366
1986
Spacelab 1

Ross, H.E., Schwartz, E., and Emmerson, P.
Mass discrimination in weightlessness improves with arm movements of higher acceleration
Naturwissenschaften, 73, 453-454
1986
Spacelab 1, D1

Ross, M.D., Rogers, C.M., and Donovan, K.M.
Innervation patterns in rat saccular macula
Acta Otolaryngol., 102, 75-86
1986
SLS-1

Scano, A., Cama, G., and Strollo, F.
(IN ITALIAN WITH ENGLISH SUMMARY) Funzione cardiovascolare ed equilibrio dei liquidi nel volo spaziale
Min. Aerosp., 18, 69
1986
Spacelab 1

Spangenberg, D.B.
Statolith formation in Cnidaria: Effects of cadmium on Aurelia statoliths
Scan. Electron Microsc., 4, 1609-1618
1986
SLS-1

Sprenkle, J.M., Eckberg, D.L., Goble, R.L., Schelhorn, J.J., and Halliday, H.C.
Device for rapid quantification of human carotid baroreceptor-cardiac reflex responses
J. Appl. Physiol., 60, 727-732
1986
SLS-1

Stein, T.P., Settle, R.G., Albina, J.A., Dempsey, D.T., and Melnick, G.
Metabolism of nonessential ^{15}N-labeled amino acids and the measurement of human whole-body protein
J. Nutr., 116, 1651-1659
1986
SLS-1

Vailas, A.C., Zernicke, R.F., Matsuda, J., Curwin, S., and Durivage, J.
Adaptation of rat knee meniscus to prolonged exercise
J. Appl. Physiol., 60(3), 1031-1034
1986
Spacelab 3

Volkmann, D., Behrens, H.M., and Junk, P.
Flight hardware for chemical fixation of living material in the microgravity environment
Naturwissenschaften, 73, 435-437
1986
D1

Volkmann, D., Behrens, H.M., and Sievers, A.
Development and gravity sensing of cress roots under microgravity
Naturwissenschaften, 73, 438-441
1986
D1

Watt, D.G.D., Money, K.E., and Tomi, L.M.
MIT/Canadian vestibular experiments on the Spacelab-1 mission: 3. Effects of prolonged weightlessness on a human otolith-spinal reflex
Exp. Brain Res., 64, 308-315
1986
Spacelab 1

Wetzig, J., von Baumgarten, R.
Effects of rectilinear acceleration, caloric and optokinetic stimulation of human subjects in the Spacelab D-1 mission
Adv. Space Res., 6(12), 161-170
1986
D1

Young, L.R.
Gravitational effects on brain and behavior
In *Encyclopedia of Neuroscience*, Vol. 1, ed. G. Adelman, Birkhauser Boston, Inc., Cambridge, 473-474
1986
Spacelab 1

Young, L.R., Oman, C.M., Watt, D.G.D., Money, K.E., Lichtenberg, B.K., Kenyon, R.V., and Arrott, A.P.
MIT/Canadian vestibular experiments on the Spacelab-1 mission: 1. Sensory adaptation to weightlessness and readaptation to one-g: an overview
Exp. Brain Res., 64, 291-298
1986
Spacelab 1

Young, L.R., Shelhamer, M., and Modestino, S.
MIT/Canadian vestibular experiments on the Spacelab-1 mission: 2. Visual vestibular tilt interaction in weightlessness
Exp. Brain Res., 64, 299-307
1986
Spacelab 1

Arieli, R., and Fahri, L.E.
Gravity-induced hyperventilation is caused by a reduced brain perfusion
Respir. Physiol., 69, 237-244
1987
SLS-1

Bikle, D.D., Halloran, B.P., Cone, C.M., Globus, R.K., and Morey-Holton, E.
The effects of simulated weightlessness on bone maturation
Endocrinology, 120(2), 678-684
1987
SLS-1

Buckey, J.C., Beattie, J.M., Nixon, J.V., Gaffney, F.A., and Blomqvist, C.G.
Right and left ventricular volumes in-vitro by a new nongeometric method
Am. J. Cardiac Imaging, 1, 227-233
1987
SLS-1

Buckey, J.C., Goble, R.L., and Blomqvist, C.G.
A new device for continuous ambulatory central venous pressure measurement
Medical Instrumentation, 21, 238-243
1987
SLS-1

Cann, C.E., Henzl, M., Burry, K., Andreyko, J., Hanson, F., Adamson, G.D., Trobough, G., Henrichs, L., and Stewart, G.
Reversible bone loss is produced by the GnRH agonist Nafarelin
In *Calium Regulation and Bone Metabolism: Basic and Clinical Aspects*, Vol. 9, eds. D.V. Cohn, T.J. Martin, and P.J. Meunier, Elsevier Science Publishers, New York, 123-127
1987
Spacelab 3, SLS-1

Life Sciences

Chapman, D.K., Heathcote, D.G., and Brown, A.H.
Light output from tungsten filament lamps during low gravity exposure on KC-135 flights
ASGSB Bulletin 1, 37
1987
IML-1

Cogoli, A., Bechler, B., Lorenzi, G., Gmünder, F., and Cogoli, M.
Cell cultures in space: From basic research to biotechnology
In *Biological Sciences in Space*, eds. S. Watanabe, G. Mitaray, and S. Mori, Myu Research, Toyko, 225-232
1987
Spacelab 1

Curthoys, I.S., and Oman, C.M.
Dimensions of the horizontal semicircular duct, ampulla, and utricle in the human
Acta Otolaryngol., 103, 254-261
1987
Spacelab 1

Grindeland, R., Hymer, W.C., Farrington, M., Fast, T., Hayes, C., Motter, K., Patil, L., and Vasques, M.
Changes in pituitary growth hormone cells prepared from rats flown on Spacelab 3
Am. J. Physiol., 252, R209-R215
1987
Spacelab 3

Heathcote, D.G., and Bircher, B.W.
Enhancement of phototropic response to a range of light doses in Tricticum aestivum coleoptiles in clinostat-simulated microgravity
Planta, 170, 249-256
1987
Spacelab 1, IML-1

Huang, J-K, and Young, L.R.
Influence of visual and motion cues on manual lateral stabilization
Aviat. Space Environ. Med., 58(12), 1197-1204
1987
Spacelab 1

Kambe, F., Miyamoto, N., Murata, Y., Seo, H., Matsui, N., and Tamura, Y.
Calcium and phosphate metabolism under high altitude exposure in man
Environ. Med., 31, 9-13
1987
Spacelab J

Kasting, G.A., Eckberg, D.L., Fritsch, J.M., and Birkett, C.L.
Continuous resetting of the human carotid baroreceptor-cardiac reflex
Am. J. Physiol., 252, R732-R736
1987
SLS-1

Katoh, S., Miyamoto, Y., Seo, H., Kodama, I., Matsui, N., and Toyama, J.
Atrial natriuretic peptide (AMNP) secretion from isolated rat hearts
Environ. Med., 31, 87-92
1987
Spacelab J

Lange, R.D., Andrews, R.B., Gibson, L.A., Congdon, C.C., Wright, P., Dunn, C.D.R., and Jones, J.B.
Hematological measurements in rats flown on Spacelab Shuttle, SL-3
Am. J. Physiol., 252, R216-R221
1987
Spacelab 3

Lange, R.D., Jones, J.B., and Johnson, P.C.
Comparative aspects of hematological responses in animal and human models in simulations of weightlessness and space flight
The Physiologist, 30(1, Suppl.), 113-116
1987
Spacelab 1, Spacelab 3

Lapchine, L., Moatti, N., Richoilley, G., Templier, J., Gasset, G., and Tixador, R.
(IN FRENCH) Study of antibiotics activity in space
Innovation Technol. Biol. Med., 8(3), 261-270
1987
D1

Leach, C.S.
Fluid control mechanisms in weightlessness
Aviat. Space Environ. Med., 58(9, Suppl.), A74-79
1987
Spacelab 1

Leach, C.S., Schneider, H., Cintrón, N.M., and Landry, R.
Combined blood investigations
In *Results of the Life Sciences DSOs Conducted Aboard the Space Shuttle 1981-1986*, eds. M.W Bungo, T Bagian, M.A. Bowman, and B.M. Levitan, Space Biomedical Research Institute, Johnson Space Center, TX, 7-11
1987
Spacelab 1

Matsui, N., Claybaugh, J.R., Tamura, Y., Seo, H., Murata, Y., Shiraki, K., Nakayama, H., Lin, Y.C., and Hong, S.K.
Seadragon VI: A 7-day saturation dive at 31 ATA, VI. Hyperbaria enhances renin but eliminates ADH response to head-up tilt
Undersea Biomed. Res., 14, 387-400
1987
Spacelab J

Matsui, N., Tamura, Y., Seo, H., and Murata, Y.
Control of body fluid metabolism under unusual environments
In *Biological Sciences in Space*, eds. S. Watanabe, G. Mitarai, and S. Mori, MU Research, Tokyo, 111-120
1987
Spacelab J

Mednieks, J.I., and Hand, A.F.
Salivary gland ultrastructure and cyclic AMP-dependent reactions in Spacelab 3 rats
Am. J. Physiol., 252, R233-R239
1987
Spacelab 3

Morrison, D.R., Lewis, M.L., Tschopp, A., and Cogoli, A.
Incubator Cell Attachment Test (ICAT)
In *Results of the Life Sciences DSOs Conducted Aboard the Space Shuttle 1981-1986*, eds. M.W. Bungo, T. Bagian, M.A. Bowman, and B.M. Levitan, Space Biomedical Research Institute, Johnson Space Center, TX, 87-91
1987
Spacelab 1

Nissenson, R.A., Karpf, D., Bambino, T., Winer, J., Canga, M., Nyiredy, K., and Arnaud, C.D.
Covalent labeling of a high-affinity, guanyl nucleotide sensitive parathyroid hormone receptor in canine renal cortex
Biochem., 26(7), 1874-1878
1987
SLS-1

Norsk, P., Foldager, N., Bonde-Petersen, F., Elmann-Larsen, B., and Johansen, T.S.
Central venous pressure in humans during short periods of weightlessness
J. Appl. Physiol., 63, 2433-2437
1987
D2

Oman, C.M.
Spacelab experiments on space motion sickness
Acta Astronautica, 15(1), 55-56
1987
Spacelab 1

Oman, C.M., Marcus, E.N., and Curthoys, I.A.
The influence of semicircular canal morphology on endolymph flow dynamics: An anatomically descriptive mathematical model
Acta Otolaryngol., 103, 1-13
1987
Spacelab 1

Parra, B., Buckey, J., DeGraff, D., Gaffney, F.A., and Blomqvist, C.G.
Echocardiographic measurements of left ventricular mass by a non-geometric method
Aviat. Space Environ. Med., 58(9, Suppl.), A64-A68
1987
SLS-1

Patterson-Buckendahl, P., Arnaud, S.B., Mechanic, G.L., Martin, R.B., Grindeland, R.E., and Cann, C.E.
Fragility and composition of growing rat bone after one week in spaceflight
Am. J. Physiol., 252, R240-R246
1987
Spacelab 3

Riley, D.A., Ellis, S., Slocum, G.R., Satyanarayana, T., Bain, J.L.W., and Sedlak, F.R.
Hypogravity-induced atrophy of rat soleus and extensor digitorum longus muscles
Muscle Nerve, 10, 560-568
1987
SLS-1

Roberts, W.E., Fielder, P.J., Rosenoer, L.M.L., Maese, A.C., Gonsalves, M.R., and Morey, E.R.
Nuclear morphometric analysis of osteoblast precursor cells in peridontal ligament, SL-3 rats
Am. J. Physiol., 252, R247-R251
1987
Spacelab 3

Ross, H.E.
Space psychology
In *The Oxford Companion to the Mind*, ed. R. L. Gregory, 725-727
1987
Spacelab 1

Ross, H.E., and Brodie, E.E.
Weber fractions for weight and mass as a function of stimulus intensity
Quarterly J. Exp. Psychol., 39A, 77-88
1987
Spacelab 1

Ross, H.E., Schwartz, E., and Emmerson, P.
The nature of sensorimotor adaptation to altered G-levels: Evidence from mass-discrimination
Aviat. Space Environ. Med., 58(9, Suppl.), A148-A152
1987
Spacelab 1, D1

Ross, M.D.
Implications of otoconial changes in microgravity
The Physiologist, 30(1, Suppl.), 90-93
1987
SLS-1

Ross, M.D., Donovan, K.M., and Rogers, C.
Peripheral sensory processing in mammalian gravity receptors: Observations of ciliary tuft configurations
In *The Vestibular System: Neurophysiologic and Clinical Research*, eds. M.D. Grapham and J.L. Kemink, New York, Raven Press, 119-124
1987
SLS-1

Scherer, H., and Clarke, A.H.
Thermal stimulation of the vestibular labyrinth during orbital flight
Arch. Otorhinolaryngol., 244, 159-166
1987
Spacelab 1

Shaw, S.R., Zernicke, R.F., Vailas, A.C., DeLuna, D., Thomason, D.B., and Baldwin, K.M.
Mechanical, morphological, and biochemical adaptations of bone and muscle to hindlimb suspension and exercise
J. Biomechan., 20(3), 225-234
1987
SLS-1

Shelhamer, M., Marino, L.A., Young, L.R., Arrott, A.P., and Wiseman, J.J.
Normative study of Spacelab preflight/postflight vestibular test battery
Aviat. Space Environ. Med., 58(9, Suppl.), A236-A239
1987
Spacelab 1

Shykoff, B.E., and Swanson, H.T.
A model-free method for mass spectrometer response correction
J. Appl. Physiol., 63(5), 2148-2153
1987
SLS-1, SLS-2

Snell, P.G., Martin, W.H., Buckey, J.C., and Blomqvist, C.G.
Maximal vascular leg conductance in trained and untrained men
J. Appl. Physiol., 62, 606-610
1987
SLS-1

von Baumgarten, R.
Orbital weightlessness as a new tool for vestibular research: Experiments in two Spacelab missions including experiments on caloric nystagmus
Biol. Sci. Space, 2, 53-60
1987
Spacelab 1, D1

Wronski, T.J., and Morey-Holton, E.R.
Skeletal response to simulated weightlessness: A comparison of suspension techniques
Aviat. Space Environ. Med., 58(1), 63-68
1987
SLS-1

Wronski, T.J., Morey-Holton, E.R., Doty, S.B., Maese, A.C., and Walsh, C.C.
Histomorphometric analysis of rat skeleton following spaceflight
Am. J. Physiol., 252, R252-R255
1987
SLS-1

Yip, R.K., and Riley, D.A.
Effects of methyl mercury on the motor and sensory innervation of the rat extensor digitorum longus muscle
Environ. Res., 43, 85-96
1987
SLS-1

Zachariassen, E., Johnsson, A., Brown, A. H., Chapman, D. K., and Johnson-Glebe, C.
Influence of the g-force on the circumnutations of sunflower hypocotyls
Physiol. Plantarum, 70, 447-452
1987
Spacelab 1

Brown, A.H., and Chapman, D.K.
Kinetics of suppression of circumnutation by clinostatting favors modified internal oscillator model
Am. J. Bot., 76, 1247-1251
1988
Spacelab 1

Buckey, J.C., Peshock, R.M., and Blomqvist, C.G.
Deep venous contribution to hydrostatic blood volume change in the human leg
Am. J. Cardiol., 62, 449-453
1988
SLS-1

Cann, C.E.
Quantitative CT for determination of bone mineral density: A review
Radiology, 166(2), 509-522
1988
Spacelab 3, SLS-1

Cogoli, A.
Space biologist's inflight safety considerations
Space Safety and Rescue 1986-87, 70, 217-221
1988
Spacelab 1

Cogoli, A., Bechler, B., Müller, O., and Hunzinger, E.
Effect of microgravity on lymphocyte activation
In *Biorack on Spacelab D1*, eds. N. Logdon, and D.V. Noordwijk, ESA Publications Division (ESA SP-1091), 89-100
1988
D1

Cowles, J.R.
Space biology
McGraw-Hill Yearbook of Science and Technology
1988
OSS-1

Cowles, J.R., LeMay, R., and Jahns, G.
Microgravity effects on plant growth and lignification
Astro. Lett. and Comm., 27, 223-228
1988
OSS-1

Curwin, S.L., Vailas, A.C., and Wood, J.
Immature tendon adaptation to strenuous exercise
J. Appl. Physiol., 65(5), 2297-2301
1988
Spacelab 3

Gmünder, F.K., and Cogoli, A.
Cultivation of single cells in space
Appl. Microgravity Tech., 1, 115-122
1988
Spacelab 1

Gmünder, F.K., Lorenzi G., Behler, B., Joller, P., Müller, J., Ziegler, W.H., and Cogoli, A.
Effect of long-term physical exercise on lymphocyte reactivity: similarity to space flight reactions
Aviat. Space Environ. Med., 59, 146-151
1988
Spacelab 1

Gmünder, F.K., Nordau, C-G., Tschopp, A., Huber, B., and Cogoli, A.
Dynamic Cell Cultures System: A new cell cultivation instrument for biological experiments in space
J. Biotechnol., 7, 217-227
1988
Spacelab 1

Guy, H.J.B., Prisk, G.K., and West, J.B.
Pulmonary function in microgravity: Spacelab 4 and beyond
Acta Astronautica, 17(10), 1139-1143
1988
SLS-1

Hatano, T., Ogawa, K., Kanda, K., Seo, H., and Matsui, N.
Effect of ovarian steroids on cyclic adenosine 3': 5'-monophosphate production stimulated by arginine vasopressin in rat renal monolayer cultured cells
Endocrnol. Japan, 35, 267-274
1988
Spacelab J

Heathcote, D.G., and Chapman, D.K.
Comparison of phototropic responses of wheat coleoptiles in flight hardware and clinostat tests
ASGSB Bulletin, 2, 46
1988
Spacelab 1

Horneck, G.
Survival strategies for life in high UV, very low density environment
In *Bioastronomy --The Next Steps*, ed. G. Marx, Kluwer Academic Publishers, 201-205
1988
Spacelab 1

Johnson, P.C., Driscoll, T.B., and Leach, C.S.
Decreases in red cell mass found after space flight
In *Regulation of Erythropoiesis*, eds. E.D. Zanjani, M. Tavassoli, and J.L. Ascensao, PMA Publishing Corp., New York, 405-414,
1988
Spacelab 1

Kenyon, R.V., Kerschmann, R., and Silbergleit, R.
Streptomycin in the chick embryo: Post-hatching vestibular behavior and morphology
Exp. Brain Res., 69, 260-271
1988
Spacelab 1

Kiss, K., and Mennigmann, H.D.
Effects of ultrahigh vacuum and UV irradiation on transforming DNA of Haemophilus influenzae
In *Terrestrial Space Radiation and its Biological Effects*, NATO ASI series, Series A, Life Sciences: Vol. 154, eds. P.D. McCormack, C.E. Swenberg, and H. Bücker, Plenum Press, New York, 375-382
1988
D1

Lange, R.D., Andrews, R.B., Gibson, L.A., Wright, P., Dunn, C.D.R., and Jones, J.B.
Hematological studies on rats flown on Shuttle flight SL-3
In *Regulation of Erythropoiesis*, eds. E.D. Zanjani, M. Tavassoli, and J.L. Ascensao, PMA Publishing Corp., New York, 455-466
1988
Spacelab 3

Leach, C.S., Chen, J.P., Crosby, W., Johnson, P.C., Lange, R.D., Larkin, E., and Tavassoli, M.
Hematology and biochemical findings of Spacelab 1 flight
In *Regulation of Erythropoiesis*, eds. E.D. Zanjani, M. Tavassoli, and J.L. Ascensao, PMA Publishing Corp., New York, 415-453
1988
Spacelab 1

Leach, C.S., Johnson, P.C., and Cintrón, N.M.
The endocrine system in space flight
Acta Astronautica, 17(2), 161-166
1988
Spacelab 1

Lorenzi, G., Bechler, B., Cogoli, M., and Cogoli, A.
Gravitational effects on mammalian cells
The Physiologist, 32, S144-S147
1988
Spacelab 1

Martin, T.P.
Protein and collagen content of rat skeletal muscle following space flight
Cell Tiss. Res., 254, 251-253
1988
Spacelab 3

Martin, T.P., Edgerton, V.R., and Grindeland, R.E.
Influence of space flight on rat skeletal muscle
J. Appl. Physiol., 65(5), 2318-2325
1988
Spacelab 3

Matsui, N., Tamura, Y., Seo, H., Murata, Y., Miyamoto, N., and Sueda, K.
Acclimatization to high altitude--Subsidence of hypothalamo-pituitary-adrenocortical activation
In *High Altitude Medical Science*, ed. G. Ueda et al., Shinshu University, Matsumoto, Japan, 137-143
1988
Spacelab J

Miyamoto, N., Nomura, Y., Niwa, Y., Kambe, F., Inoue, I., Murata, Y., Nakayama, E., Ohmori, S., Seo, H., Matsui, N., and Sueda, K.
Involvement of steroid hormones in the disuse atrophy of rat hindlimb muscles
In *Biological Sciences in Space*, Vol. 2, eds.. S. Watanabe, G. Mitarai, and S. Mori, MU Research, Tokyo, 305
1988
Spacelab J

Morey-Holton, E.R., Schnoes, H.K., DeLuca, H.F., Phelps, M.E., Klein, R.F., Nissenson, R.H., and Arnaud, C.D.
Vitamin D metabolites and bioactive parathyroid hormone levels during Spacelab 2
Aviat. Space Environ. Med., 59(11), 1038-1041
1988
Spacelab 2

Murata, Y., Miyamoto, N., Inoue, I., Tamura, Y., Seo, H., and Matsui, N.
Changes of water- and electrolyte-regulating hormones in blood and urine by the postural change (standing - 6° head-down tilt - standing)
Environ. Med., 32, 21-29
1988
Spacelab J

Neubert, J., Briegleb, W., Schatz, A., Hertwig, I., and Kruse, B.
The response of structure and function of the gravireceptor in a vertebrae to near weightlessness
Acta Astronautica, 17(2), 257-262
1988
D1

Niwa, Y., Miyamoto, N., Inoue, I., Murata, Y., Ohmori, S., Kambe, F., Seo, H., and Matsui, N.
Fluid-electrolyte metabolism and related hormone responses during postural changes in humans
Environ. Med., 32, 31-35
1988
Spacelab J

Norsk, P., and Epstein, M.
Effects of water immersion on arginine vasopressin release in humans
J. Appl. Physiol., 64, 1-10
1988
D2

Oman, C.M., and Kulbaski, M.J.
Space flight affects the 1-g postrotatory vestibulo-ocular reflex
Adv. Otolaryngol., 42, 5-8
1988
Spacelab 1

Oman, C.M., Young, L.R., Watt, D.G.D., Money, K.E., Lichtenberg, B.K., Kenyon, R.V., and Arrott, A.P.
MIT/Canadian Spacelab experiments on vestibular adaptation and space motion sickness
In *Basic and Applied Aspects of Vestibular Function*, eds. J.C. Hwang, N.G. Daunton, and V.J. Wilson, Hong Kong University Press, Hong Kong, 183-192,
1988
Spacelab 1

Reitz, G., Facius, R., and Bücker, H.
Radiation problems in manned spaceflight--European efforts
NATO ASI Series A: Life Sciences, 154, 619-639
1988
Spacelab 1

Riley, D.A., Bain, J.L.W., Ellis, S., and Haas, A.L.
Quantitation and immunocytochemical localization of ubiquitin conjugates within rat red and white skeletal muscles
J. Histochem. Cytochem., 36(6), 631-632
1988
SLS-1

Riley, D.A., Ellis, S., and Bain, J.L.W.
Catalase-positive microperoxisomes in rat soleus and extensor digitorum longus muscle fiber types
J. Histochem. Cytochem., 36(6), 633-637
1988
SLS-1

Riley, D.A., Sanger, J.R., Matloub, H.S., Yousif, N.G., Bain, J.L.W., and Moore, G.H.
Identifying motor and sensory myelinated axons in rabbit peripheral nerves by histochemical staining for carbonic anhydrase and cholinesterase activities
Brain Res., 453, 79-88
1988
SLS-1

Ross, H.E.
Motor skills in space
Spectrum, 213, 1-3
1988
Spacelab 1, D1

Ross, M.D.
Morphological evidence for parallel processing of information in rat macula
Acta Otolaryngol., 106, 213-218
1988
SLS-1

Ross, M.D., Cutler, L., Meyer, G., Vaziri, P., and Lam, T.
Macular bioaccelerometers on Earth and in space
In *Basic and Applied Aspects of Vestibular Function*, eds. J.C. Hwang, N.G. Daunton, and V.J. Wilson, Hong Kong University Press, Hong Kong, 219-229
1988
SLS-1

Schmedtje, J.F., Oman, C.M., Letz, R., and Baker, E.L.
Effects of scopolamine and dextroamphetamine on human performance
Aviat. Space Environ. Med., 59, 407-410
1988
Spacelab 1

Shaw, S.R., Vailas, A.C., Grindeland, R.E., and Zernicke, R.F.
Effects of a 1-wk spaceflight on morphological and mechanical properties of growing bone
Am. J. Physiol., 254, R78-R83
1988
Spacelab 3

Sieber-Blum, M., Kumar, S.R., and Riley, D.A.
In vitro differentiation of quail neural crest cells into sensory-like neuroblasts
Dev. Brain Res., 39, 69-83
1988
SLS-1

Tamura, Y., Miyamoto, N., Kanda, K., Murata, Y., Seo, H., and Matsui, N.
Catecholamine response to altitude exposure in man
In *High Altitude Medical Science*, eds. G. Ueda, S. Kusama, and N.F. Voekel, 144-148
1988
Spacelab J

Life Sciences

Tomioka, S., Kubo, S., Guy, H.J.B., and Prisk, G.K.
Gravitational independence of single-breath washout in recumbent dogs
J. Appl. Physiol., 64(2), 642-648
1988
SLS-1

Vailas, A.C., DeLuna, D.M., Lewis, L.L., Curwin, S.L., Roy, R.R., and Alford, E.K.
Adaptation of bone and tendon to prolonged hindlimb suspension in rats
J. Appl. Physiol., 64(1), 373-376
1988
Spacelab 3

Volkmann, D.
Microgravity and the organisms: Results of the Spacelab mission D1
Acta Astronautica, 17, 267-270
1988
D1

Volkmann, D., Czaja, I., Sievers, A.
Stability of cell polarity under various gravitational forces
The Physiologist, 31(Suppl.), 40-43
1988
D1

Weber, P.K.H., Mennigmann, H.D., and Greenberg, J.M.
Effect of high-vacuum, deep temperatures, and VUV irradiation on bacterial spores
In *Terrestrial Space Radiation and its Biological Effects*, NATO ASI series, Series A, Life Sciences: Vol. 154, eds. P.D. McCormack, C.E. Swenberg, and H. Bücker, Plenum Press, New York, 383-391
1988
D1

Briegleb, W., Neubert, J., Schatz, A., and Kruse, B.
Light microscopic analysis of the gravireceptor in Xenopus larvae developed in hypogravity
Adv. Space Res., 9(11), 241-244
1989
D1

Cogoli, A.
La biologia spaziale, un trampolino verso il futuro
Scienza & Tecnica, Annuario EST, 284-292
1989
Spacelab 1

Cogoli, A., Iverson, T.H., Johnsson, A., Mesland, D., and Oser, H.
Cell biology
In *Life Sciences Research in Space*, eds., H. Oser and B.B. Battrick, Noordwijk, ESA Publications Division (ESA SP-1105), 49-64
1989
Spacelab 1

Cogoli, A., Lorenzi, G., Bechler, B., and Cogoli, M.
Effect of space flight on single cells
Chimica Oggi, 7, 21-24
1989
Spacelab 1

Cogoli, M., and Cogoli, A.
Research on BIOLAB, a multi-user facility for APM
Space Technol., 9, 41-45
1989
Spacelab 1

Convertino, V.A., Doerr, D.R., Eckberg, D.L., Fritsch, J.M., and Vernikos-Danellis, J.
Carotid baroreflex response following 30 days exposure to simulated microgravity
The Physiologist, 32(1, Suppl.), S67-S68
1989
SLS-1

Fritsch, J.M., Rea, R.F., and Eckberg, D.L.
Carotid baroreflex resetting during drug-induced arterial pressure changes in humans
Am. J. Physiol., 256, R549-R553
1989
SLS-1

Gmünder, F.K., Suter, R.N., Kiess, M., Urfer, R., Nordau, C-G., and Cogoli, A.
Mammalian cell cultivation in space
Adv. Space Res., 9, 119-127
1989
Spacelab 1, IML-1

Graham, S.C., Roy, R.R., West, S.P., Thomason, D., and Baldwin, K.
Exercise effects on the size and metabolic properties of soleus fibers in hindlimb-suspended rats
Aviat. Space Environ. Med., 60(3), 226-234
1989
SLS-1

Guy, H.J.B., and Prisk, G.K.
Heart-lung interactions in aerospace medicine
In *Heart-Lung Interactions in Health and Disease*, eds, S.M. Scharf and S.S. Cassidy, Marcel Dekker, Inc., New York, 519-563
1989
SLS-1

Heinrich, W., Wiegel, B., Ohrendorf, T., Bücker, H., Reitz, G., and Schott, J.U.
LET spectra of cosmic-ray nuclei for near Earth orbits
Radiat. Res., 118, 63-82
1989
Spacelab 1

Hensel, W.
Physiology of movements in space experiments
In *Progress in Botany*, Vol. 50, Springer, Berlin, Heidelberg, 158-162
1989
D1

Inoue, I., Murata, Y., Miyamoto, N., Kambe, F., Niwa, Y., Ohmori, S., Tamura, Y., Seo, H., and Matsui, N.
Water and electrolyte metabolism under head-out water immersion in man
Environ. Med., 33, 19-26
1989
Spacelab J

Kanda, K., Ogawa, K., Miyamoto, N., Hatano, T., Seo, H., and Matsui, N.
Potentiation of atrial natriuretic peptide-stimulated cyclic guanosine monophosphate formation by glucocorticoids in cultured rat renal cells
Br. J. Pharmacol., 96, 795-800
1989
Spacelab J

Leach, C.S., and Johnson, P.C., Jr.
Effects of weightlessness on human fluid and electrolyte physiology
In *Physiological Function in Special Environments*, eds. C.V. Paganelli, and L.E. Farhi, Springer, New York, 138-146
1989
Spacelab 1

Leach, C.S., Johnson, P.C., and Cintrón, N.M.
Hematology, immunology, endocrinology, and biochemistry
In *Space Physiology and Medicine*, 2nd ed., eds. A.E. Nicogossian, C.L. Huntoon, and S.L. Pool, Lea & Febiger, Philadelphia, 222-239
1989
Spacelab 1

Malacinski, G., Neff, A.W., Alberts, J.R., and Souza, K.A.
Developmental biology in outer space
Bioscience, 39, 314-320
1989
Spacelab J

Mennigmann, H.D.
Exobiology: Results of spaceflight missions
Adv. Space Res., 9(6), 3-12
1989
D1

Miyamoto, N., Nomura, Y., Sueda, K., Kambe, F., Inoue, I., Murata, Y., Seo, H., and Matsui, N.
Involvement of corticosterone and testosterone in muscle atrophy of rat hindlimb induced by tail suspension
Environ. Med., 33, 59-62
1989
Spacelab J

Patterson-Buckendahl, P., Globus, R.K., Bikle, D.D., Cann, C.E., and Morey-Holton, E.
Effects of simulated weightlessness on rat osteocalcin and bone calcium
Am. J. Physiol., 257, R1103-R1109
1989
SLS-1

Rasmussen, O., Baggerud, C., and Iversen, T-H.
Preparatory studies for the use of plant protoplasts in space research
Physiologia Plantarum, 76, 431-437
1989
IML-1

Reitz, G., Bücker, H., Facius, R., Horneck, G., Graul, E.H., Berger, H., Rüther, W., Heinrich, W., Beaujean, R., Enge, W., Alpotov, A.M., Ushakov, I.A., Zachvatkin, Y.A., and Mesland, D.A.M.
Influence of cosmic radiation and/or microgravity on development of Carausis morosus
Adv. Space Res., 9(10), 161-173
1989
D1

Roberts, L.A., Slocum, G.R., and Riley, D.A.
Morphological study of the innervation pattern of the rabbit sinoatrial node
Am. J. Anat., 185, 74-88
1989
SLS-1

Scano, A.
Balistocardiografia
In *Encicliopedia Medica Italiana*, USES, Florence, Italy, Vol. I (updating Suppl. I), 980
1989
Spacelab 1

Sessions, N.D.V., Halloran, B.P., Bikle, D.D., Wronski, T.J., Cone, C.M., and Morey-Holton, E.
Bone response to normal weight bearing after a period of skeletal unloading
Am. J. Physiol., 257, E606-E610
1989
SLS-1

Strollo, F., Strollo, G., Morè, M., and Riondino, G.
(IN ITALIAN, WITH ENGLISH ABSTRACT) Decubito antiortostatico di breve durata quale test di adattamento endorcino precoce alla microgravità
Min. Aerosp., 21, 13-18
1989
Spacelab 1

Todd, P.
Gravity-dependent phenomena at the scale of the single cell
ASGSB Bulletin, 2, 95-113
1989
USML-1

Watt, D.G.D., Money, K.E., Tomi, L.M., and Better, H.
Otolith-spinal reflex testing on Spacelab-1 and D-1
The Physiologist, 32(1, Suppl.), S49-S52
1989
Spacelab 1, D1

Young, L.R.
Alterations in brain function during weightlessness
In *The Science of Mind*, ed. K.A. Klivington, MIT Press, Cambridge
1989
Spacelab 1

Arnaud, S.B., and Morey-Holton, E.
Gravity, calcium, and bone: Update, 1989
The Physiologist, 33(1, Suppl.), S65-S68
1990
SLS-1

Arrott, A.P., Young, L.R., and Merfeld, D.M.
Perception of linear acceleration in weightlessness
Aviat. Space Environ. Med., 61, 319-326
1990
SLS-1

Brown, A.H., Chapman, D.K., Lewis, R.F., and Venditti, A.L.
Circumnutations of sunflower hypocotyls in satellite orbit
Plant Physiol., 94, 233-238
1990
Spacelab 1

Cogoli, A., Bechler, B., and Lorenzi, G.
Response of cells to microgravity
In *Fundamentals of Space Biology*, eds. M. Asashima and G. M. Malacinski, Japan Sci. Press, Tokyo/Springer-Verlag, Berlin, 97-111
1990
IML-1

Cogoli, A., Cogoli, M., Bechler, B., Lorenzi, G., and Gmünder, F.
Cell cultures in space: Biology and bioprocessing
In *Space Commerce*, ed. J. J. Egan, Gordon and Breach Science Publishers, Montreux, 161
1990
IML-1

Convertino, V.A., Doerr, D.F., Eckberg, D.L., Fritsch, J.M., and Vernikos-Danellis, J.
Head-down bed rest impairs vagal baroreflex responses and provokes orthostatic hypotension
J. Appl. Physiol., 68, 1458-1464
1990
SLS-1

Convertino, V.A., Thompson, C.A., Eckberg, D.L., Fritsch, J.M., Mack, G.W., and Nadel, E.R.
Baroreflex responses and LBNP tolerance following exercise training
The Physiologist, 33(Suppl.), S40-S41
1990
SLS-1

Drummer, C., Lang, R.E., Baisch, F., Blomqvist, G., Heer, M., and Gerzer, R.
Effects of saline loading during head down tilt on ANP and cyclic GMP levels and on urinary fluid excretion
Acta Astronautica, 23, 25-29
1990
D2

Drummer, C., Stromeyer, H., Riepl, R., König, A., Strollo, F., Lang, R.E., Maass, H., Röcker, L., and Gerzer, R.
Hormonal changes during parabolic flight. Implications for the development of motion sickness
Aviat. Space Environ. Med., 61, 821-828
1990
D2

Gmünder, F.K., Kiess, M., Sonnenfeld, G., Lee, J., and Cogoli, A.
A ground-based model to study the effects of weightlessness on lymphocytes
Biol. Cell, 70, 33-38
1990
Spacelab 1

Hayashi, Y., Murata, Y., Kambe, F., Miyamoto, N., Seo, H., Tamura, Y., and Matsui, N.
Modification of hormonal responses to postural change by stress load
Environ. Med., 34, 121-124
1990
Spacelab J

Heathcote, D.G., Brown, A.H., and Chapman, D.K.
FOTRAN: an experiment to investigate the effects of phototropic stimulations on the growth movements of wheat seedlings using the Gravitational Plant Physiology Facility on the IML-1 Spacelab mission
ASGSB Bulletin, 4, 56
1990
IML-1

Heer, M., Drummer, C., Baisch, F., Gerzer, R., Maass, H., and Blomqvist, G.
Effects of 10 days HDT on fluid and electrolyte metabolism
The Physiologist, 33, S165-S166
1990
D2

Kambe, F., Miyamoto, N., Murata, Y., Seo, H., Tamura, Y., and Matsui, N.
Modification of hormonal responses to head-out water immersion by prior posture, head-down tilt
Environ. Med., 34, 51-60
1990
Spacelab J

Matsui, N., Miyamoto, N., Inoue, I., Murata, Y., Kambe, F., Ohmori, S., Kanda, K., Seo, H., and Tamura, Y.
Adaptation to high altitude in man: The role of the endocrine system on water and electrolyte metabolism
In *Environmental Stress*, ed. O. Manninen, 293-306
1990
Spacelab J

Miyamoto, N., Nomura, Y., Kambe, F., Inoue, I., Murata, Y., Seo, H., Sueda, K., and Matsui, N.
Influence of feeding on hindlimb muscle atrophy in tail-suspended adult rats
Environ. Med., 34, 109-112
1990
Spacelab J

Morey-Holton, E.R., and Cone, C.M.
Bone as a model system to organ/tissue responses to microgravity
In *Fundamentals of Space Biology*, eds. M. Asashima and G.M. Malacinski, Japan Science Society Press, Tokyo, 113-122
1990
SLS-1

Musacchia, X.J., Steffen, J.M., Fell, R.D., and Dombrowski, M.J.
Skeletal muscle response to space flight, whole body suspension, and recovery in rats
J. Appl. Physiol., 69(6), 2248-2253
1990
Spacelab 3

Oman, C.M., Lichtenberg, B.K., and Money, K.E.
Space motion sickness monitoring experiment: Spacelab 1
In *Motion and Space Sickness*, ed. G.H. Crampton, CRC Press, Boca Raton, FL, 217-246
1990
Spacelab 1

Riley, D.A., Ilyina-Kakueva, E.I., Ellis, S., Bain, J.L.W., Slocum, G.R., and Sedlak, F.R.
Skeletal muscle fiber, nerve, and blood vessel breakdown in space-flown rats
FASEB J., 4, 84-91
1990
SLS-1

Saul, J.P., Rea, R.F., Eckberg, D.L., Berger, R.D., and Cohen, R.J.
Heart rate and muscle sympathetic nerve variability during reflex changes of autonomic activity
Am. J. Physiol., 258, H713-H721
1990
SLS-1

Sopher, S.M., Smith, M.L., Eckberg, D.L., and Fritsch, J.M.
Autonomic pathophysiology in heart failure: carotid baroreceptor-cardiac reflexes
Am. J Physiol., 259, H689-H696
1990
SLS-1

Sueda, K., Miyamoto, N., Ohmori, S., Seo, H., and Matsui, N.
Responses of cortisol and testosterone to simulated 6000m altitude exposure in men
Environ. Med., 34, 125-128
1990
Spacelab J

Vailas, A.C., Zernicke, R.F., Grindeland, R.E., Kaplansky, A., Durnova, G.N., Li, K.C., and Martinez, D.A.
Effects of spaceflight on rat humerus geometry, biomechanics, and biochemistry
FASEB J., 4, 47-54
1990
Spacelab 3

Wassersug, R., and Souza, K.A.
The bronchial diverticula of Xenopus larvae: Are they essential for hydrostatic assessment?
Naturwissenschaften, 77, 442-445
1990
Spacelab J

Young, L.R.
Before we send people to Mars
In *Robotics, Control and Society*, eds. N. Moray, et. al., Taylor and Francis, 221-224
1990
SLS-1

Young, L.R., and Shelhamer, M.
Microgravity enhances the relative contribution of visually-induced motion sensation
Aviat. Space Environ. Med., 61, 525-530
1990
SLS-1

Zoghbi, W.A., Buckey, J.C., Massey, M.A., and Blomqvist, C.G.
Determination of left ventricular volumes with use of a new nongeometric echocardiographic method: Clinical validation and potential application
J. Am. Coll. Cardiol., 15, 610-617
1990
SLS-1

Ballard, R.W., and Souza, K.A.
Man in space: The use of animal models
Acta Astronautica, 23, 295-297
1991
Spacelab J

Brown, A.H.
Centrifuges: Evolution of their uses in plant gravitational biology and new directions for research on the ground and in spaceflight
ASGSB Bulletin, 5(2), 43-57
1991
Spacelab 1, IML-1

Brown, A.H.
From gravity and the organism to gravity and the cell
ASGSB Bulletin, 4(2), 7-18
1991
Spacelab 1, IML-1

Brown, A.H.
Gravity perception and circumnutation in plants
In *Advances in Space Biology and Medicine*, Vol. 1, ed. S.L. Bonting, JAI Press, 129-153
1991
Spacelab 1

Cogoli, A.
Changes observed in lymphocyte behavior during gravitational unloading
ASGSB Bulletin, 4, 107-115
1991
Spacelab 1

Cogoli, A., and Gmünder, F.K.
Gravity effects on single cells: Techniques, findings and theory
In *Advances in Space Biology and Medicine*, Vol. 1, ed. S.L. Bonting, JAI Press Inc., 183-248
1991
Spacelab 1, IML-1

Drummer, C., Fielder, F., König, A., and Gerzer, R.
Urodilatin, a kidney-derived natriuretic factor, is excreted with a circadian rhythm and stimulated by saline infusion in man
J. Am. Soc. Nephrol., 1, 1109-1113
1991
D2

Eckberg, D.L.
Cardiovascular responses to weightlessness
In *Encyclopedia of Human Biology*, Volume 2, ed. R. Dulbecco, Academic Press, San Diego, 147-156
1991
SLS-1

Eckberg, D.L., and Fritsch, J.M.
Human autonomic responses to actual and simulated weightlessness
J. Clin. Pharmacol., 31, 951-955
1991
SLS-1

Eidesmo, T., Brown, A., Chapman, D., and Johnsson, A.
Tropistic responses of Avena seedlings in simulated hypogravity
Microgravity Sci. and Technol., IV(3), 199-206
1991
IML-1

Foldager, N., and Blomqvist, C.G.
Repeated plasma volume determination with the Evans Blue dye dilution technique: The method and a computer program
Computers in Biol. Med., 21(1/2), 35-41
1991
SLS-1

Fritsch, J.M., Smith, M.L., Eckberg, D.L., and Simmons, D.T.F.
Differential baroreflex modulation of human vagal and muscle sympathetic activity
Am. J. Physiol., 260, R635-R641
1991
SLS-1

Hayamizu, S., Kanda, K., Miyamoto, N., Murata, Y., Seo, H., and Matsui, N.
Potentiation of atrial natriuretic peptide action by glucocorticoids in adrenalectomized rats
Environ. Med., 35, 75-78
1991
Spacelab J

Henkel, J., and Hock, B.
Clinostatic rotation decreases crossover frequencies in the fungus Sordaria macrosporia Auersw.
Microgravity Sci. and Technol., 4(4), 267-272
1991
D2

Horneck, G., Keller, B., Papavassiliou, A., and Bücker, H.

Inactivation action spectra of bacteriophage and bacteria in the UV and vacuum-UV range

Int. J. Radiat. Biol., 59, 582

1991

Spacelab 1

Kambe, F., Ohmori, S., Yamamoto, C., Miyamoto, N., Murata, Y., Seo, H., Tamura, Y., and Matsui, N.

Changes in serum level of parathyroid hormone and nephrogeneous 3':5'-adenosine monophosphate excretion under acute high altitude exposure in man

Environ. Med., 35, 37-42

1991

Spacelab J

Kanda, K., Miyamoto, N., Seo, H., Ogawa, K., Hatano, T., and Matsui, N.

Diuretics modify Arg^8 vasopressin-stimulated cAMP but not atrial natriuretic peptide-stimulated cGMP formation in renal cells

Eur. J Pharmacol., 192, 153-159

1991

Spacelab J

Leach, C.S., Cintrón, N.M., and Krauhs, J.M.

Metabolic changes observed in astronauts

J. Clin. Pharmacol., 31, 921-927

1991

Spacelab 1

Leach, C.S., Inners, L.D., and Charles, J.B.

Changes in total body water during spaceflight

J. Clin. Pharmacol., 31, 1001-1006

1991

Spacelab 1

Levine, B.D., Buckey, J.C., Fritsch, J.M., Yancy, C.W., Jr., Watenpaugh, D.E., Snell, P.G., Lane, L.D., Eckberg, D.L., and Blomqvist, C.G.

Physical fitness and cardiovascular regulation: Mechanisms of orthostatic intolerance

J. Appl. Physiol., 70, 112-122

1991

SLS-1

Levine, B.D., Lane, L.D., Buckey, J.C., Friedman, D.B., and Blomqvist, C.G.

Left ventricular pressure-volume and Frank-Starling relations in endurance athletes: Implications for orthostatic tolerances and exercise performance

Circulation, 84, 1016-1023

1991

SLS-1

Lindberg, C., and Horneck, G.

Action spectra for survival and spore photoproduct formation of Bacillus subtilis irradiated with short wavelength (200-300 nm) UV at atmospheric pressure and in vivo

J. Photochem. Photobiol., 11, 69-880

1991

Spacelab 1

Lindberg, C., Horneck, G., and Bücker, H.

UV action spectrum for photoproduct formation in DNA of B. subtilis spores

Int. J. Radiat. Biol., 59, 573

1991

Spacelab 1

Mennigmann, H.D.

UV and exobiology: Can microorganisms survive the space environment?

In *Photobiology--The Science and Its Applications*, ed. E. Riklis, Plenum Press, New York, 1015-1022

1991

D1

Merfeld, D.M., Young, L.R., Tomko, D.L., and Paige, G.D.
Spatial orientation of VOR to vestibular stimuli in squirrel monkeys
Acta Otolaryngol., 481(Suppl.), 287-292
1991
SLS-1

Miquel, J., and Souza, K.A.
Gravity effects on reproduction, development, and aging
Adv. in Space Biol. and Med., 1, 71-97
1991
Spacelab J

Miyamoto, N., Matsui, N., Inoue, I., Seo, H., Nakabayashi, K., and Owia, H.
Hyperbaric diuresis is associated with decreased antidiuretic hormone and increased atrial natriuretic polypeptide in humans
Japan. J. Physiol., 41, 85-99
1991
Spacelab J

Miyamoto, N., Nomura, Y., Kambe, F., Murata, Y., Seo, H., Sueda, K., and Matsui, N.
Effect of adrenalectomy and testectomy on muscle atrophy of rat hindlimbs induced by tail suspension
Environ. Med., 35, 71-74
1991
Spacelab J

Neubert, J., Rahmann, H., Briegleb, W., Slenzka, K., Shatz, A., and Bromeis, B.
STATEX II on Spacelab mission D-2--an overview of the joint project "Graviperception and Neuronal Plasticity" and preliminary pre-flight results
Microgravity Q., 1(3), 173-182
1991
D2

Norsk, P., and Epstein, M.
Manned space flight and the kidney
Am. J. Nephrol., 11, 81-97
1991
D2

Ross, H.E.
Motor skills under varied gravitoinertial force in parabolic flight
Acta Astronautica, 23, 85-95
1991
Spacelab 1, D1

Ross, H.E., and Farkin, B.
Knowledge of arm position under varied gravitoinertial force in parabolic flight
In *Microgravity Experiments during Parabolic Flights with Caravelle*, eds. V. Plester and J. F. Couffey, ESTEC, Netherlands, ESA WPP-021, 147-152
1991
Spacelab 1, D1

Shelhamer, M., and Young, L.R.
Linear accleration and horizontal eye movements in man
Acta Otolaryngol., 481(Suppl.), 277-281
1991
Spacelab 1

Sievers, A., Buchen, B., Volkmann, D., and Hejnowicz, Z.
Role of the cytoskeleton in gravity perception
In *The Cytoskeletal Basis of Plant Growth and Form*, ed. C.W. Lloyd, Academic Press, London, 169-182
1991
D1

Slenzka, K., Appel, R., and Rahmann, H.
Brain Ca^{2+}/Mg^{2+}-ATPase activity and seasonal adaptation of the Djungarian Dwarf Hamster Phodopus sungorus
Comp. Biochem. Physiol., 100A(4), 937-941
1991
D2

Spangenberg, D.B.
Rhopalium development in Aurelia aurita ephyrae
Hydrobiologia, 216/217, 45-49
1991
SLS-1

Strollo, F., Antonini R., and Scano, A.
(IN ITALIAN WITH ENGLISH ABSTRACT) L'intervallo R-R in microgravità. Studio preliminare
Min. Aerosp., 23, 1-5
1991
Spacelab 1

Volkmann, D., Buchen, B., Hejnowicz, Z., Tewinkel, M., and Sievers, A.
Oriented movement of statoliths studied in a reduced gravitational field during parabolic flights of rockets
Planta, 185, 153-161
1991
D1

Watanabe, S., Seo, H., Iwase, S., Tanaka, M., Kaneko, S., Mano, T., Matsui, N., Foldager, N., Bonde-Petersen, F., Yamashita, M., Shoji, T., and Sudoh, H.
Telescience testbed in human space physiology
Acta Astronautica, 23, 327-333
1991
Spacelab J

Watanabe, S., Takabayashi, A., Tanaka, M., and Yanagihara, D.
Neurovestibular physiology in fish
In Advances in Space Biology and Medicine, Vol. 1, ed. S. Bonting, JAI Press, Inc., Greenwich, London, 99-128
1991
Spacelab J

West, J.B.
Human experiments on Spacelab SLS-1
The Physiologist, 34(1, Suppl.), S27-S28
1991
SLS-1

Young, L.R., Jackson, D.K., Groleau, N., and Modestino, S.A.
Multisensory integration in microgravity
In *Sensing and Controlling Motion: Vestibular and Sensorimotor Function*, eds. B. Cohen, D.L. Tomko, and F. Guedry, Annuals of the New York Academy of Sciences, 656, 340-353
1991
SLS-1

Alleban, Z., Ichiki, A.T., Jones, J.B., Gibson, L.A., Irwin, C., Congdon, C., and Lange, R.D.
Regulation of erythropoiesis during space flight
Exp. Hematology, 20(6), 792
1992
SLS-1

Baisch, F., Beck, L., Karemaker, J.M., Arbeille, P., Gaffney, F.A., and Blomqvist, C.G.
Head-down tilt bedrest: HDT'88--An international collaborative effort in integrated systems physiology
Acta. Physiol. Scand., 144(S604), 1-12
1992
SLS-1

Bechler, B., Cogoli, A., and Cogoli-Greuter, M.
Communication to the editor: Activation of microcarrier-attached lymphocytes in microgravity
Biotech. & Bioeng., 40, 991-996
1992
Spacelab 1, SLS-1

Bechler, B., Cogoli, A., Cogoli-Greuter, M., Müller, O., Hunzinger, E., and Criswell, S.B.
Activation of microcarrier-attached lymphocytes in microgravity
Biotech. & Bioeng., 40, 991-996
1992
Spacelab 1, SLS-1

Beck, L., Baisch, F., Gaffney, F.A., Buckey, J.C., Arbeille, P., Patat, F., Harkel, A.D.J., Hillebrecht, A., Schulz, H., Karemaker, J.M., Meyer, M., and Blomqvist, C.G.
Cardiovascular response to lower body negative pressure before, during, and after ten days head-down tilt bedrest
Acta Physiol. Scand., 144(S604), 43-52
1992
SLS-1

Brown, A.H., Chapman, D.K., and Heathcote, D.G.
Characterization of precocious seedling development observed during IML-1 mission
ASGSB Bulletin, 6, 58
1992
IML-1

Buckey, J.C., Lane, L.D., Plath, G., Gaffney, F.A., Baisch, F., and Blomqvist, C.G.
Effects of head-down tilt for 10 days on the compliance of the leg
Acta. Physiol. Scand., 144(S604), 53-59
1992
SLS-1

Chapes, S.K., Morrison, D.R., Guikema, J.A., Lewis, M.L., and Spooner, B.S.
Cytokine secretion by immune cells in space
J. Leukocyte Biol., 52, 104-110
1992
USML-1

Chapman, D.K., Heathcote, D.G., Brown, A.H., and Johnsson, A.C.G.
Detection of apparent autotropic responses of seedlings under microgravity conditions on IML-1
ASGSB Bulletin, 6, 59
1992
IML-1

Drummer, C., Gerzer, R., Heer, M., Molz, B., Bie, P., Schlossberger, M., Stadeager, C., Röcker, L., Strollo, F., Heyduck, B., Bauer, K., Warberg, J., Baisch, F., Christensen, N-J., König, A., and Norsk, P.
Effects of an acute saline infusion on fluid and electrolyte metabolism in humans
Am. J. Physiol., 262, F744-F754
1992
D2

Drummer, C., Heer, M., Blomqvist, G., Lang, R.E., Maass, H.P., and Gerzer, R.
Diuresis and natriuresis following isotonic saline infusion in healthy young volunteers before, during, and after head-down tilt
Acta Physiol. Scand., 144(S604), 101-111
1992
D2

Eckberg, D.L., and Fritsch, J.M.
Influence of ten day head-down bed rest on human carotid baroreceptor-cardiac reflex function
Acta Physiol. Scand., 144(S604), 67-74
1992
SLS-1

Eckberg, D.L., and Sleight, P.
Human baroreflexes in health and disease
Oxford University Press (Monograph Series, The Physiological Society)
1992
SLS-1

Eckberg, D.L., Convertino, V.A., Fritsch, J.M., and Doerr, D.F.
Reproducibility of human vagal carotid baroreceptor-cardiac reflex responses
Am. J. Physiol., 263, R215-R220
1992
SLS-1

Fritsch, J.M., Charles, J.B., Bennett, B.S., Jones, M.M., and Eckberg, D.L.
Short-duration space flight impairs human carotid baroreceptor-cardiac reflex responses
J. Appl. Physiol., 73, 664-671
1992
SLS-1

Gerzer, R., and Drummer, C.
Hormonal control of body fluid metabolism
Acta Astronautica, 27, 109-114
1992
D2

Gibson, L.A., Alleban, Z., Irwin, C.W., Ichiki, A.T., and Lange, R.D.
Hematological effects of spaceflight in rats
Blood, 80(10, Suppl. 1), 285A
1992
SLS-1

Gmünder, F.K., Kiess, M., Sonnenfeld, G., Lee, J., and Cogoli, A.
Reduced lymphocyte activation in space: Role of cell-substratum interactions
Adv. Space Res., 12(1), 55-61
1992
Spacelab 1

Guedry, F.E., Rupert, A.H., McGrath, B.J., and Oman, C.M.
The dynamics of spatial orientation during complex and changing linear and angular acceleration
J. Vestibular Res., 2, 259-283
1992
SLS-1

Haas, G., Hinghofer-Szalkay, H., Baisch, F., Maass, H., Lane, L., and Blomqvist, C.G.
Effect of head-down bedrest on blood/plasma density after intravenous fluid load
Acta Physiol. Scand., 144(S604), 113-120
1992
SLS-1

Hayashi, Y., Murata, Y., Seo, H., Miyamoto, N., Kambe F., Ohmori, S., Yamamoto, C., Hayamizu, S., Tamura, Y., and Matsui, N.
Modification of water and electrolyte metabolism during head-down tilting by hypoglycemia in men
J. Appl. Physiol., 73(5), 1785-90
1992
Spacelab J

Heathcote, D.G., Brown, A.H., and Chapman, D.K.
Evidence of circumnutation in wheat coleoptiles under microgravity conditions on the International Microgravity Laboratory mission
ASGSB Bulletin, 6, 88
1992
IML-1

Heathcote, D.G., Brown, A.H., and Chapman, D.K.
The occurrence of spontaneous growth curvatures in wheat coleoptiles grown at 0g on the International Microgravity Laboratory mission
ASGSB Bulletin, 6, 50
1992
IML-1

Heer, M., Drummer, C., Baisch, F., Maass, H., Gerzer, R., Kropp, J., and Blomqvist, G.
Effects of head down tilt and saline loading on body weight, fluid and electrolyte homeostasis in man
Acta Physiol. Scand., 144(S604), 13-22
1992
D2

Hillebrecht, A., Schulz, H., Meyer, M., Baisch, F., Beck, L., and Blomqvist, C.G.
Pulmonary response to LBNP and fluid loading during head-down tilt bedrest
Acta Physiol. Scand., 144(S604), 35-42
1992
SLS-1

Horneck, G., and Brack, A.
Study of the origin, evolution, and distribution of life with emphasis on exobiology experiments in Earth orbit
In *Advances in Space Biology and Medicine*, Vol. 2, ed. S.L. Bonting, JAI Press, 229-262
1992
Spacelab 1

Johansen, L.B., Foldager, N., Stadeager, C., Kristensen, M.S., Bie, P., Warberg, J., Kamegai, M., and P. Norsk
Plasma volume, fluid shifts, and renal responses in humans during 12 hours of head-out water immersion
J. Appl. Physiol., 73, 539-544
1992
D2

Kambe, F., Ohmori, S., Yamamoto, C., Miyamoto, N., Murata, Y., Seo, H., Tamura, Y., and Matsui, N.
Effect of simulated high altitude exposure in man on changes in serum PTH and nephrogenous cAMP
In *High-Altitude Medicine*, eds. G. Ueda, J.T., Reeves, and M. Sekiguchi, Shinshu University Press, Matsumoto, 206-210
1992
Spacelab J

Kamegai, M., Kristensen, M.S., Warberg, J., and Norsk, P.
Carotid baroreflexes and plasma vasopressin in humans during head-up tilt
Am. J. Physiol., 263, R318-R323
1992
D2

Keller, B., and Horneck, G.
Action spectra in the vacuum-UV and far-UV (122-300 nm) for inactivation of wet and vacuum-dry spores of Streptomyces griseus and photoreactivation
J. Photochem. Photobiol., 16, 61-72
1992
Spacelab 1

Koga, K.
Motion perception and gravity cue
Environ. Med., 36, 35-41
1992
Spacelab J

Leach, C.S.
Biochemical and hematological changes after short-term spaceflight
Microgravity Q., 2, 69-75
1992
Spacelab 1

Lindberg, C., and Horneck, G.
Thymine photoproduct formation and inactivation of intact spores of Bacillus subtilis irradiated with short wavelength (200-300 nm) at atmospheric pressure and in vacuo
Adv. Space Res., 12(4), 2275-279
1992
Spacelab 1

Littgues, M.W.
Recognizing and optimizing flight opportunities with hardware and life sciences limitations
Trans. Kansas Acad. Soc., 95, 76-86
1992
USML-1

Morey-Holton, E., Cone, C., Doty, S., and Vailas, A.
Biomineralization and spaceflight
ASGSB Bulletin, 6(1), 99
1992
SLS-1*

Norsk, P.
Gravitational stress and volume regulation
Clin. Physiol., 12, 505-526
1992
D2

Oman, C.M., and Shubentsov, I.
Space sickness symptom severity correlates with average head acceleration
In *Mechanisms and Control of Emesis*, eds. A.L. Bianchi, L. Grelot, A.D. Miller, and G.L. King, Colloque INSERM/John Libbey Eurotext Ltd., 233, 185-194
1992
SLS-1

Puskeppeleit, M., Quintern, L.E., El Naggar, S., Schott, J.U., Eschweiler, U., Horneck, G., and Bücker, H.
Long-term dosimetry of solar UV-radiation in Antarctica with spores of Bacillus subtilis
Appl. Environ. Microbiol., 58, 2355-2359
1992
Spacelab 1

Quintern, L.E., Horneck, G., Eschweiler, U., and Bücker, H.
A biofilm used as UV-dosimeter
J. Photochem. Photobiol., 55, 389-395
1992
Spacelab 1

Rahmann, H., Slenzka, K., Körtje, K.H., and Hilbig, R.
Synaptic plasticity and gravity: ultrastructural, biochemical, and physico-chemical fundamentals
Adv. Space Res., 12 (1), 63-72
1992
D2

Ross, M.D.
Synaptic plasticity in utricular maculas of rats exposed to microgravity
ASGSB Bulletin, 6(1), 100
1992
SLS-1

Rudolph, I.L., Schaefer, R.L., Heathcote, D.G., and Chapman, D.K.
Development of space flight experiments: 1. Biocompatibility testing--the IML-1 experience
ASGSB Bulletin, 6, 47
1992
IML-1

Scano, A., Strollo, F., Rispoli, E., Cama, G., Guidetti L., and Brazzoduro, G.
(IN ITALIAN WITH ENGLISH SUMMARY) Una ricerca balistocardiografica in microgravitia
Min. Aerosp., 24
1992
Spacelab 1

Spangenberg, D.B.
Effects of microgravity on jellyfish development and behavior
ASGSB Bulletin, 6(1), 100
1992
SLS-1

Stadeager, C., Johansen, L.B., Warberg, J., Christensen, N.J., Foldager, N., Bie, P., and Norsk, P.
Circulation, kidney function, and volume-regulating hormones during prolonged water immersion in humans
J. Appl. Physiol., 73, 530-538
1992
D2

Sueda, K., Ohmori, S., Hayashi, Y., Miyamoto, N., Murata, Y., Seo, H., and Matsui, N.
Changes in serum cortisol and testosterone in men during exposure to simulated high altitude
In *High-Altitude Medicine*, eds. G. Ueda, J.T., Reeves, and M. Sekiguchi, Shinshu University Press, Matsumoto, 211-216
1992
Spacelab J

Tixador, R., Gasset, G., Eche, B., Moatti, N., Lapchine, L., Woldringh, C., Toorop, P., Moatti, J. P., Delmotte, F., and Tap, G.
Behaviour of bacteria and antibiotic under space conditions
Aviat. Space Environ. Med.
1992
IML-1

Volkmann, D., and Sievers, A.
Forschung unter reduzierter Schwerkraft. Teil I: Grundlagen der Gravitationsbiologie
Naturwissenschaften, 79, 68-74
1992
D1

Volkmann, D., and Sievers, A.
Forschung unter reduzierter Schwerkraft. Teil II: Experimente in variierenden Gravitationsfeldern
Naturwissenschaften, 79, 118-124
1992
D1

Watenpaugh, D.E., Yancy, C.W., Buckey, J.C., Lane, L.D, Hargens, A.R., and Blomqvist, C.G.
Role of atrial natriuretic peptide in systemic responses to acute isotonic volume expansion
J. Appl. Physiol., 73, 1218-1226
1992
SLS-1

Wehner, J., Horneck, G., and Bücker, H.
Plasmids as test system for the detection of DNA strand breaks
In *Biological Effects and Physics of Solar and Galactic Cosmic Radiation*, eds. C.E. Swenberg, G. Horneck, and E.C. Stassinopoulos, Plenum Press, New York, Part A, 49-52
1992
Spacelab 1

Yamamoto, C., Yoshino, M., Mori, S., Seo, H., and Matsui, N.
Role of corticosterone in acclimatization of rats to high altitude hypoxia
Environ. Med., 36, 43-46
1992
Spacelab J

Young, L.R., and Standish, G.
Influence of tactile cues on visually induced postural reactions
In *The Head-Neck Sensory-Motor System*, eds. A. Berthoz, W. Graf, and P.P. Vidal, Oxford University Press, New York, 555-559
1992
SLS-1

Baldwin, K.M., Herrick, R.E., and McCue, S.A.
Substrate oxidation capacity in rodent skeletal muscle: Effects of exposure to zero gravity
J. Appl. Physiol., 75(6), 2466-2470
1993
SLS-1

Bechler, B., Hunzinger, E., Müller, O., and Cogoli, A.
Culture of hybridoma and Friend leukemia virus transformed cells in microgravity - Spacelab IML-1 mission
Biol. Cell, 79, 45-50
1993
IML-1

Brown, A.H.
Circumnutations: from Darwin to space flight
Plant Physiol., 101, 345-348
1993
Spacelab 1

Brown, T.E., Beightol, L.A., Koh, J., and Eckberg, D.L.
The important influence of respiration on human R-R interval power spectra is largely ignored
J. Appl. Physiol., 75, 2310-2317
1993
SLS-1

Bücker, H., Horneck, G., Facius, R., and Reitz, G.
Radiation exposed in manned space flight
Kerntechnik, 58(4), 229-234
1993
Spacelab 1

Buckey, J.C., Gaffney, F.A., Lane, L.D., Levine, B.D., Watenpaugh, D.E., and Blomqvist, C.G.
Central venous pressure in space
New Engl. J. Med., 328, 1853-1854
1993
SLS-1

Chang, D., Paulsen, A., Johnson, T.C., and Consigli, R.A.
Virus protein assembly in microgravity
Adv. Space Res., 13(7), 7251-7257
1993
USML-1

Cogoli, A.
Spaceflight and the immune system
Vaccine, 11, 496-503
1993
Spacelab 1, SLS-1

Cogoli, A.
The activation of T lymphocytes in space--An overview
Biol. Sci. Space, 7(1), 1-7
1993
Spacelab 1, SLS-1

Cogoli, A.
The effect of hypergravity on cells of the immune system
J. Leukocyte Biol., 53, 569-575
1993
Spacelab 1, SLS-1

Cogoli, A.
The effect of space flight on human cellular immunity
Environ. Med., 37, 107-116
1993
Spacelab 1, SLS-1

Cogoli, A., Bechler, B., Cogoli-Greuter, M., Joller, H., Joller, P., Hunzinger, E., and Müller, O.
Mitogenic signal transduction in T-lymphocytes in microgravity
J. Leukocyte Biol., 53, 569-575
1993
Spacelab 1, SLS-1

Drummer, C., Fielder, F., Bub, A., Kleefeld, D., Dimitriadis, E., Gerzer, R., and Forssman, W-G.
Development and application of a urodilatin (CDD/ANP 95-126)-specific radioimmunoassay
Eur. J. Physiol., 423, 372-377
1993
D2

Drummer, C., Heer, M., Dressendörfer, R.A., Strasburger, C.J., and Gerzer, R.
Consistently reduced natriuresis during weightlessness
Clin. Invest., 71, 678-686
1993
D2

Eckberg, D.L., and Fritsch, J.M.
How should human baroreflexes be tested?
News Physiol. Sci., 8, 7-12
1993
SLS-1

Eckberg, D.L., Halliwill, J.R., Smith, M.L., and Minisi, A.J.

Autonomic complicity in catastrophic cardiac rhythms

In *Cardiovascular Reflex Control in Health and Disease*, eds. R. Hainsworth and A.L. Mark, W.B. Saunders, 397-423

1993

SLS-1

Fareh, J., Cottet-Emard, J-M., Pequignot, J-M., Jahns, G., Meylor, J., Viso, M., Vassaux, D., Gauquelin, G., and Gharib, C.

Norepinephrine content in discrete brain areas and neurohypophysial vasopressin, in rats after a 9-d spaceflight (SLS-2)

Aviat. Space Environ. Med., 64, 507-511

1993

SLS-2

Gabrielsen, A., Johansen, L.B., and Norsk, P.

Central cardiovascular pressures during graded water immersion in humans

J. Appl. Physiol., 75, 581-585

1993

D2

Haddad, F., Herrick, R.E., Adams, G.R., and Baldwin, K.M.

Myosin heavy chain expression in rodent skeletal muscle: Effects of exposure to zero gravity

J. Appl. Physiol., 75(6), 2471-2477

1993

SLS-1

Heer, M., Drummer, C., Maass, H., Röcker, L., Baisch, F., and Gerzer, R.

Long-term elevations of dietary sodium produce parallel increases in the renal excretion of urodilatin and sodium

Eur. J. Physiol., 425, 390-394

1993

D2

Herbute, S.J.O., Davet, J., Viso, M., Ballard, R.W., Gharib, C., Gabrion, J.

ANP binding sites are increased in choroid plexus of SLS-1 rats after 9 days of spaceflight

Aviat. Space Environ. Med., 65, 134-138

1993

SLS-1

Horneck, G.

Responses of Bacillus subtilis spores to space environment: results from experiments in space

Origins of Life, 23, 37-52

1993

Spacelab 1

Kern, V.D., and Hock, B.

Fungi in space--literature survey on fungi used for space research

Microgravity Sci. and Technol., 6(3), 194-206

1993

D2

Koga, K., Mano, T., Kida, M., Tsuji, K., Goto, T., and Osaka, R.

Human space experiments in SL-J: preparation and conducts

Environ. Med., 37

1993

Spacelab J

Loon, J.J.W.A., van Veldhuijzen, J.P., Windgassen, E.J., Brouwer, T., Wattel, K., van Vilsteren, M., and Maas, P.

Development of tissue culture techniques and hardware to study mineralization of skeletal tissues under microgravity conditions

Adv. Space Res., 14/1

1993

IML-1

Lorenzi, G., Gmünder, F., and Cogoli, A.
Cultivation of hamster kidney cells in a dynamic cell culture system in space
Microgravity Sci. and Technol., 6, 34-38
1993
IML-1

Norsk, P., Drummer, C., Johansen, L. B., and Gerzer, R.
Effect of water immersion on renal natriuretic peptide excretion (urodilatin, ANP 95-126) in humans
J. Appl. Physiol., 74, 2881-2885
1993
D2

Norsk, P., Ellegaard, P., Videbæk, R., Stadeager, C., Jessen, F., Johansen, L.B., Kristensen, M., Kamegai, M., Warberg, J., and Christensen, N.J.
Arterial pulse pressure and vasopressin release in humans during lower body negative pressure
Am. J. Physiol., 264, R1024-R1030
1993
D2

Norsk, P., Stadeager, C., Johansen, L.B., Warberg, J., Bie, P., Foldager, N., and Christensen, N.J.
Volume-homeostatic mechanisms in humans during a 12-h posture change
J. Appl. Physiol., 75, 349-356
1993
D2

Oman, C.M., and Balkwill, M.D.
Horizontal angular VOA, nystagmus dumping, and sensation duration in Spacelab SLS-1 crewmembers
J. Vestibular Res., 3, 315-30
1993
SLS-1

Paulus, U., Körtje, K.H., and Rahmann, H.
Effects of development and altered gravity conditions on cytochrome oxidase activity in a vestibular nucleus of the larval teleost brain: A quantitative electronmicroscopical study
J. Neurobiol., 24, 1131-1141
1993
D2

Prisk, G.K., Guy, H.J.B., Elliott, A.R., Deutschmann, R.A., III, and West, J.B.
Pulmonary diffusing capacity, capillary blood volume and cardiac output during sustained microgravity
J. Appl. Physiol., 75, 15-26
1993
SLS-1

Quintern, L.E., Puskeppeleit, M., Rainer, P., Weber, S., El Naggar, S., Eschweiler, U., and Horneck, G.
Continuous dosimetry of the biologically harmful UV-radiation in Antarctica with the biofilm technique
J. Photochem. Photobiol. B
1993
Spacelab 1

Reitz, G., Beaujean, R., Heckeley, N., and Obe, G.
Dosimetry in the space radiation field
Clin. Invest., Continuation of Klinische Wochenschrift, 71, 710-717
1993
Spacelab 1

Riley, D.A., Ellis, S., Slocum, G.R., Sedlak, F.R., Bain, J.L., Kriipprndorf, B.B., Macias, M.Y., Thompsonn, J.L.
Spaceflight and reloading effects on rat hindlimb skeletal muscles
ASGSB Bulletin, 7, 81
1993
SLS-1

Ross, M.D.
Morphological changes in rat vestibular system following weightlessness
J. Vestibular Res., 3(3), 241-251
1993
SLS-1

Slenzka, K., Appel, R., and Rahmann, H.
Brain creatine kinase activity during ontogeny of the Cichlid Fish Oreochromis mossambicus and the Clawed Toad Xenopus laevis: Influence of gravity?
Neurochem. Int., 22(4), 405-411
1993
D2

Stein, T.P., Leskiw, M.J., and Schluter, M.D.
Effect of spaceflight on human protein metabolism
Am. J. Physiol., 264, E824-E828
1993
SLS-1

Wagner, G.
APCF on Spacehab-1: A scientifically successful mission
Low G, 4, 20-21
1993
Spacehab 1

Watt, D.G.D., Landolt, J.P., and Young, L.R.
Effects of long-term weightlessness on roll circularvection
Can. Aeron. and Space J., 39(1), 52-55
1993
IML-1

Young, L.R., Oman, C.M., Merfeld, D., Watt, D., Serge, R., DeLuca, C., Balkwill, D., Christie, J., Groleau, N., Jackson, D.K., Law, G., Modestino, S., and Mayer, W.
Spatial orientation and posture during and following weightlessness: Human experiments on Spacelab Life Sciences 1
J. Vestibular Res., 3, 231-239
1993
SLS-1

Alleban, Z., Ichiki, A.T., Jones, J.B., Gibson, L.A., Congdon, C., and Lange, R.D.
Effects of spaceflight on the number of rat peripheral blood leukocytes and lymphocyte subsets
J. Leukocyte Biol., 55, 209-213
1994
SLS-2

Anken, R.H., Slenzka, K., Neubert, J., and Rahmann, H.
Altered gravity affects succinate dehydrogenase reactivity in specific nuclei in the fish brain
Neuroreport, 5, 1313-1316
1994
D2

Blomqvist, C.G., Buckey, J.C., Gaffney, F.A., Lane, L.D., Levine, B.D., and Watenpaugh, D.E.
Mechanisms of post-flight orthostatic intolerance
J. Grav. Physiol., 1, P122-P124
1994
SLS-1, D2

Chapman, D.K., Johnsson, A., Karlsson, C., Brown, A.H., and Heathcote, D.G.
Gravitropically stimulated seedlings show autotropism in weightlessness
Physiol. Plantarum, 90, 157-162
1994
IML-1

Clemensen, P., Christensen, P., Norsk, P., and Grønlund, J.
A modified photo- and magnetoacoustic multigas analyzer applied in gas exchange measurements
J. Appl. Physiol., 76, 2832-2839
1994
D2

Gerzer, R., Drummer, C., and Heer, M.
Antinatriuretic kidney response to weightlessness
(IN PRESS) Acta Astronautica
1994
D2

Guy, H.J.B., Prisk, G.K., Elliott, A.R., Deutschman, R.A., and West, J.B.
Inhomogeneity of pulmonary ventilation during sustained microgravity as determined by single-breath washouts
J. Appl. Physiol., 76(4), 1719-1729
1994
SLS-1

Haindl, E., and Monzer, J.
Elongation growth and gravitropic curvature in the Flammulina velutipes (Agaricales) fruiting body
Exp. Mycology, 18, 150-158
1994
D2

Heathcote, D.G., Chapman, D.K., Brown, A.H., and Lewis, R.F.
The Gravitational Plant Physiology Facility--Description of equipment developed for biological research in Spacelab
Microgravity Sci. and Technol., VII(2)
1994
IML-1

Huntoon, C.L., Cintrón, N.M., and Whitson, P.A.
Endocrine and biochemical functions
In *Space Physiology and Medicine*, 3rd ed., eds. A.E. Nicogossian, C.L. Huntoon, and S.L. Pool, Lea & Febiger, Philadelphia, 334-350
1994
Spacelab 1

Huntoon, C.L., Whitson, P.A., and Sams, C.F.
Hematologic and immunologic functions
In *Space Physiology and Medicine*, 3rd ed., eds. A.E. Nicogossian, C.L. Huntoon, and S.L. Pool, Lea & Febiger, Philadelphia, 351-362
1994
Spacelab 1

Johnsson, A., Chapman, D.K., Brown, A.H., Johnson-Glebe, C., Karlsson, C., and Heathcote, D.G.
Gravity-sensing in oat coleoptiles: Scatter in growth orientation under different g-conditions
Plant Cell and Environ., 90, 749-754
1994
IML-1

Kern, V., and Hock, B.
Gravimorphogenesis and ultrastructure of the fungus *Flammulina velutipes* grown in space, on clinostats and under hyper-g conditions
(IN PRESS) Adv. Space Res.
1994
D2

Koh, J., Brown, T.E., Beightol, L.A., Ha, C.Y., and Eckberg, D.L.
Human autonomic rhythms: Vagal-cardiac mechanisms in tetraplegic patients
J. Physiol. Lond., 474, 483-495
1994
SLS-1

LeBlanc, A.D., Evans, H.J., Schneider, V.S., Wendt, R.E., III, and Hedrick, T.D
Changes in intervertebral disc cross-sectional area with bed rest and space flight
SPINE, 19(7), 812-817
1994
Spacelab J

Monzer, J., Haindl, E., Kern, V., and Dressel, K.
Gravitropism of the basidiomycete Flammulina velutipes. Morphological and physiological aspects of the graviresponse.
Exp. Mycology, 18, 7-19
1994
D2

Neubert, J., Schatz, A., Bromeis, B., and Briegleb, W.
The reaction of Xenopus laevis daudin (South African toad) to linear accelerations
Adv. Space Res., 14(8), 299-303
1994
D1

Prisk, G.K., Guy, H.J.B., Elliott, A.R., and West, J.B.
Inhomogeneity of pulmonary perfusion during sustained microgravity on SLS-1
J. Appl. Physiol., 76(4), 1730-1738
1994
SLS-1

Rasmussen, O., Baggerud, C., Larssen, H., Evjen, K., and Iversen, T-H.
Regeneration of intact plants from protoplasts exposed to 8 days microgravity
(IN PRESS) Physiologia Plantarum
1994
IML-1

Rasmussen, O., Bondar, R.L., Baggerud, C., and Iversen, T-H.
Development of plant protoplasts during the IML-1 mission
Adv. Space Res., 14(8), 189-196
1994
IML-1

Ross, M.D.
A spaceflight study of synaptic plasticity in adult rat vestibular maculas
Acta Otolaryngol. (Stockh), Suppl., 516, 1-14
1994
SLS-1

Seitzer, U., Bodo, M., and Mueller, P.K.
Gravity effects on connective tissue biosynthesis by cultured mesenchymal cells
(IN PRESS) Adv. Space Res.
1994
Spacelab 1

Slenzka, K., Appel, R., Hilbig, R., Kappel, T., Vetter, S., Freischütz, B., and Rahmann, H.
Behavioural and biochemical investigations of the influence of altered gravity on the CNS of aquatic vertebrates during ontogeny
Adv. Space Res., 14(8), 309-312
1994
D2

Smith, M.L., Fritsch, J.M., and Eckberg, D.L.
Rapid adaptation of vagal baroreflexes in humans
J. Autonom. Nerv. Syst., 47, 75-82
1994
SLS-1

Souza, K.A., Black, S., and Wassersug, R.
Amphibian development in the virtual absence of gravity
(IN PRESS) PNAS
1994
Spacelab J

Spangenberg, D.B., Jernigan, T., McCombs, R., Lowe, B.T., Sampson, M., and Slusser, J.
Development studies of Aurelia (jellyfish) ephyrae which developed during the SLS-1 mission
Adv. Space Res., 14(8), 239-247
1994
SLS-1

Spangenberg, D.B., Jernigan, T., Philput, C., and Lowe, B.
Graviceptor development in jellyfish ephyrae in space and on earth
Adv. Space Res., 14(8), 317-325
1994
SLS-1

Stein, T.P.
Protein requirements for long term missions
Adv. Space Res., 14, 157-166
1994
SLS-1

Stein, T.P., and Gaprindachvili, T.
Spaceflight and human protein metabolism, with special reference to man
Am. J. Clin. Nutr.
1994
SLS-1

Stein, T.P., and Schluter, M.D.
Excretion of Cytokine IL6 by astronauts during spaceflight
Am. J. Physiol., 266, E448-E454
1994
SLS-1

Stein, T.P., Schluter, M.D., and Boden, G.
Development of insulin resistance by astronauts during spaceflight
(IN PRESS) Aviat. Space Environ. Med.
1994
SLS-1

Strollo, F., Morè, M., Strollo, G., and Riondino, G.
(IN ITALIAN WITH ENGLISH ABSTRACT) Modificazioni neuroendocrine in corso di microgravità simulata
(IN PRESS) Min. Aerosp.
1994
D2

Suda, T., Abe, E., Shinki, T., Katagiri, T., Yamaguchi, A., Yokose, S., Yoshiki, S., Horikawa, H., Cohen, G.W., Yasugi, S., and Naito, M.
The role of gravity in chick embryogenesis
FEBS Letters, 340, 34-38
1994
Spacelab J

Udden, M.M., Driscoll, T.B., Gibson, L.A., Patton, C.S., Jones, J.B., Nachtman, R., Allebban, Z., Ichiki, A.T., Lange, R.D., and Alfrey, C.P.
Blood volume and erythropoiesis in the rat during spaceflight
(IN PRESS) Aviat. Space Environ. Med.
1994
SLS-1

Wagner, G.
Bacteriorhodopsin crystal growth under microgravity - Results of IML-1 and Spacehab-1 experiments
ESA J., 18, 25-32
1994
IML-1

Anken, R.H., Slenzka, K., Rahmann, H., and Neubert, J.
Histochemical investigations on the influence of long-term altered gravity on the CNS of developing cichlid fish: Results from the 2nd German Spacelab mission D-2
(IN PRESS) Adv. Space Res.
1995
D2

Brown, A.H., Chapman, D.K., Johnsson, A., Heathcote, D.G.
Gravitropic responses of the Avena coleoptile in space and on clinostats: I. Gravitropic response thresholds
(IN PRESS) Physiol. Plantarum
1995
IML-1

Brown, A.H., Chapman, D.K., Johnsson, A., Heathcote, D.G.
Gravitropic responses of the Avena coleoptile in space and on clinostats: III. The clinostat as a substitute for space experiments
(IN PRESS) Physiol. Plantarum
1995
IML-1

Heathcote, D.G., Brown, A.H., and Chapman, D.K.

The phototropic responses of Triticum aestivum coleoptiles under conditions of microgravity

(IN PRESS) Plant Cell and Environ.

1995

IML-1

Johnson, C.F., Brown, C.S., Wheeler, R.M., Sager, J.C., Chapman, D.K., and Deltzer, G.F.

Infrared-light-emitting diode radiation causes gravitropic & morphological effects on dark-grown oat seedlings

(IN PRESS) Plant Physiol.

1995

IML-1

Johnsson, A., Brown, A.H., Chapman, D.K., Heathcote, D.G., and Karlsson, C.

Gravitropic responses of the Avena coleoptile in space and on clinostats: II. Is reciprocity valid?

(IN PRESS) Physiol. Plantarum

1995

IML-1

Neubert, J., Schatz, A., Briegleb, W., Bromeis, B., Linke-Hommes, A., Rahmann, H., Slenzka, K., and Horn, E.

Early development in aquatic vertebrates in near weightlessness during the D-2 mission STATEX project

(IN PRESS) Adv. Space. Res.

1995

D2

Paulus, U., Nindl, G., Körtje, K.H., Slenzka, K., Rahmann, H., and Neubert, J.

Influence of altered gravity on the cytochemical localization of cytochrome oxidase reactivity in central and peripheral gravisensory systems in developing cichlid fish: Results from the 2nd German Spacelab mission D-2

(IN PRESS) Adv. Space Res.

1995

D2

Rahmann, H., Hilbig, R., Flemming, J., Slenzka, K., and Neubert, J.

Influence of long-term altered gravity on the swimming performance of developing cichlid fish: Including results from the 2nd German Spacelab mission D-2

(IN PRESS), Adv. Space Res.

1995

D2

Slenzka, K., Appel, R., Kappel, T., and Rahmann, H.

Influence of altered gravity on brain energy and plasma membrane metabolism of developing lower aquatic vertebrates

(IN PRESS) Adv. Space Res.

1995

D2

MICROGRAVITY SCIENCE

Leung, E.W., Jacobi, N., and Wang, T.G.
Non-linear acoustic force on spherical samples
J. Acoust. Soc. Am.
1980
Spacelab 3

Leung, E., Jacobi, N., and Wang, T.G.
Acoustic radiation force on a rigid sphere in a resonance chamber
J. Acoust. Soc. Am., 70(6), 1762-1767
1981
Spacelab 3

Mason, P., Collins, D., Cowgill, P., Elleman, D.D., Petrac, D., Saffren, M.M., and Wang, T.G.
Superfluid helium experiment for Spacelab 2
Adv. Cryog. Eng., 20
1980
Spacelab 2

Sahm, P.R., and Tensi, H.M.
Mass transport in the near vicinity of solidification fronts under conditions of microgravity
Adv. Space Res., 1, 97-103
1981
D1, D2

Trinh, E., and Wang, T.G.
Quantitative study of some nonlinear aspects of drop shape oscillations
J. Acoust. Soc. Am., 68
1980
Spacelab 2

Trinh, E., Wang, T.G., and Robey, J.
A non-uniformly heated resonance chamber for levitation studies in air
J. Acoust. Soc. Am., 70(1)
1981
Spacelab 3

Trinh, E., Wang, T.G., and Lee, M.C.
A technique for study of drop dynamics in liquid-liquid systems
J. Acoust. Soc. Am., 67
1980
Spacelab 2

Lee, M.C., Feng, I-A., Elleman, D.D., Wang, T.G., and Young, A.T.
Coating of a glass microballoon using an acoustic technique
J. Vac. Sci. Technol., 20(4)
1982
Spacelab 3

Busse, F.H., and Wang, T.G.
Torque generated by orthogonal acoustic waves--Theory
J. Acoust. Soc. Am., 69(6), 1634-1638
1981
Spacelab 3

Lee, M.C., Kendall, J.M., and Wang, T.G.
Metal shell technology based upon hollow jet instability
J. Vac. Sci. Technol., 20(4)
1982
Spacelab 3

Lee, M.C., Kendall, J.M., Wang, T.G., and Johnson, W.L.
Investigation of a model AuPbSb metallic glass system for fusion target application
J. Vac. Sci. Technol., 20(4)
1982
Spacelab 3

Lee, M.C., Kendall, J.M., Wang, T.G., and Youngberg, C.
Low gravity experimental facilities at JPL for spherical shell technology
J. Vac. Sci. Technol., 20(4)
1982
Spacelab 3

Leung, E., Lee, C.P., Jacobi, N., and Wang, T.G.
Resonance frequency shift of an acoustic chamber containing a rigid sphere
J. Acoust. Soc. Am., 72(2), 615-620
1982
Spacelab 3

Trinh, E., and Wang, T.G.
Large-amplitude free and driven drop-shape oscillations: Experimental observations
J. Fluid Mech., 122, 315-338
1982
Spacelab 3

Trinh, E., Zwern, A., and Wang, T.G.
An experimental study of small-amplitude drop oscillations in immiscible liquid systems
J Fluid Mech., 115, 453-474
1982
Spacelab 3

Wang, T.G.
Review of containerless processing technologies and facilities
Adv. Ceramics., 5
1982
Spacelab 3

Beier, W., Braedt, M., and Frischat, G.H.
Reactions between vitreous silica and sodium silicate glass melts under weightless conditions
Phys. and Chem. Glasses, 24(1), 1-4
1983
Spacelab 1, D1

Deruyttere, A., and Froyen, L.
Nieuwe materialen in de ruimte
Technivisie 1 (18, 3)
1983
Spacelab 1

Frischat, G.H.
(ORIG. IN RUSSIAN) Reaktionen in Glasschmelzen unter µg-Bedingungen
Akad. NAUK SSSR, Stekloobrazone sostojanie, 86-90
1983
D1

Kneissl, A.C., and Fischmeister, H.F.
Ostwald-Reifung in flüssigen Zink-Blei-Dispersionen
Metall, 37, 131-135
1983
Spacelab 1

Kreidl, N.J., Day, D.E., and Ray, C.S.
Containerless glass processing in space
Glastechn. Ber., 56K, 151
1983
OSTA-2

Lal, R.B., Aggarwal, M.D., Kroes, R.L., and Wilcox, W.R.
A new technique of solution crystal growth
Phys. Stat. Sol. (a), 80, 547
1983
Spacelab 3

Lee, M.C., Feng, I-A., and Wang, T.G.
A technique for thick polymer coating of inertial-confinement-fusion targets
J. Am. Vac. Soc., A1(2)
1983
Spacelab 3

Sezaki, K., Enya, S., Morioka, M., Ochiai, J., Tanasawa, I., and Maekawa, T.
Two-dimensional convection in liquid layer related to crystal growth techniques in space
Adv. Space Res., 3(5), 85-88
1983
Spacelab J

Barbieri, F., Gondi, P., Montanari, R., and Patuelli, C.
Comportamento in Gravita' Zero di Metalli Liquidi con Fasi Disperse
L'Areotecnica Missili e Spazio, 63, 179
1984
Spacelab 1

Breadt, M., and Frischat, G.H.
Sodium self diffusion coefficients in alkali silicate glass melts as obtained by a microgravity experiment
J. Am. Ceram. Soc., 67, C54-C56
1984
D1

Froyen, L., and Deruyttere, A.
Het Spacelab-1 experiment van het Departement Metaalkunde en Toegepaste Materiaalkunde van de K.U. Leuven
Alumni Leuven, 15(4), 4-6
1984
Spacelab 1

Froyen, L., and Deruyttere, A.
Melting and solidification of metallic composites in Spacelab
Physicalia 4-6, 6(2), 133-141
1984
Spacelab 1

Kneissl, A.C., and Fischmeister, H.F.
Schmelzen und Erstarren von übermonotektischen Zink-Blei-Legierungen unter Schwerelosigkeit
Metall, 38, 831-837
1984
Spacelab 1

Kneissl, A.C., and Fischmeister, H.F.
Solidification and Ostwald ripening of near-monotectic zinc-lead alloys
Science, 225, 198-200
1984
Spacelab 1

Langbein, D.
Materialforschung unter Mikrogravitation
Spektrum der Wissenschaft, (April), 28-42
1984
Spacelab 1

Lee, C.P., and Wang, T.G.
The acoustic radiation force on a heated (or cooled) rigid sphere - theory
J. Acoust. Soc. Am., 75(1), 88-96
1984
Spacelab 3

Maekawa, T., Tanasawa, I., Ochiai, J., Kuwahara, K., Morioka, M., and Enya, S.
Two-dimensional Marangoni and buoyancy convection related to crystal growth techniques in space
Adv. Space Res., 4(5), 63-66
1984
Spacelab J

Ray, C.S., and Day, D.E.
Crystallization of calcia-gallia-silica glasses
J. Am. Ceram. Soc., 67, 806
1984
OSTA-2

Tensi, H.M., Fuchs, H., Harmathy, P.F., and Schmidt, J.J.
Normalkristallisation mit Abschrecken der Restschmelze unter Weltraumbedingungen: Ausgeführte Kristallisationsanlagen
Aluminium 7, 499-502
1984
D1, D2

Tensi, H.M., Fuchs, H., Harmathy, P.F., and Schmidt, J.J.
Normalkristallisation mit Abschrecken der Restschmelze unter Weltraumbedingungen: Experimentelle Möglichkeiten der Versuchseinrichtung
Aluminium 8, 614-617
1984
D1, D2

Trinh, E., and Wang, T.G.
Study of drop oscillation and rotation in immiscible liquid systems
Soc. Math. Fr., 118
1984
Spacelab 3

Angel, P.W., Ray, C.S., and Day, D.E.
Glass formation and properties in the system calcia-gallia-germania
J. Am. Ceram. Soc., 68, 637
1985
OSTA-2

Annamlai, P., Trinh, E., and Wang, T.G.
Experimental study of the oscillations of a rotating drop
J. Fluid Mech., 158, 317-327
1985
Spacelab 3

Barbieri, F., Gondi, P., Montanari, R., and Patuelli, C.
Experiment ES 311 bubble reinforced materials
Earth-Orient. Appl. Space Technol., 5, 57
1985
Spacelab 1

Batra, A.K., Lal, R.B., and Aggarwal, M.D.
Electrical properties of TGS crystals grown by new technique
J. Mater. Sci. Lett., 4, 1415
1985
Spacelab 3

Chakraborty, I.N., and Day, D.E.
Effect of $R^{(3+)}$ ions on the structure and properties of lanthanum borate glasses
J. Am. Ceram. Soc., 68, 641
1985
OSTA-2

C-2

Chakraborty, I.N., Day, D.E., Lapp, J.C., and Shelby, J.E.
Structure property relations in lanthanide borate glasses
J. Am. Ceram. Soc., 68, 368
1985
OSTA-2

Langbein, D.
Materialforschung im Weltraum
Phys. Blätter, 41, 31-37
1985
Spacelab 1

Langbein, D.
Materialforschung in Spacelab 1
Spektrum der Wissenschaft, (Januar), 21-22
1985
Spacelab 1

Lee, C.P., Lyell, M.J., and Wang, T.G.
Viscous damping of the oscillations of a rotating simple drop
Phys. Fluids, 28(11), 3187-3188
1985
Spacelab 3

Leung, E., and Wang, T.G.
Force on a heated sphere in a horizontal plane acoustic standing wave field
J. Acoust. Soc. Am., 77(5)
1985
Spacelab 3

Lyell, M.J., and Wang, T.G.
Oscillations of a compound drop system undergoing rotation
Phys. Fluids, 28(4), 1023-1026
1985
Spacelab 3

Rosenkranz, V., Braetsch, V., and Frischat, G.H.
Glass bubbles in glass melts under microgravity: Part 1. Apparatus for photographic observation
Phys. and Chem. Glasses, 26(4), 123-125
1985
D1

Whichard, G., and Day, D.E.
Glass formation and properties in the gallia-calcia system
J. Non-Cryst. Solids, 66, 677
1985
OSTA-2

Bahrami, P.A., and Wang, T.G.
Analysis of gravity and conduction driven melting in a sphere
J. Heat Transfer, 109(3), 806
1986
Spacelab 3

Bewersdorff, A.
Transport durch chemische Wellen
Naturwissenschaften 73, 363-365
1986
D1

Braetsch, V., and Frischat, G.H.
Homogeneity of Li_2O-SiO_2 glasses as prepared under microgravity and 1-g melting conditions
Naturwissenschaften 73, 368-369
1986
D1

Chakraborty, I.N., Rutz, H.L., and Day, D.E.
Glass formation, properties and structure of Y_2O_3-Al_2O_3-B_2O_3 system
J. Non-Cryst. Solids, 84, 86
1986
D1

Day, D.E., and Ray, C.S.
Research on containerless melts in space
Prog. Aeronautics Astronautics, 108, 165-192
1986
D1

Deruyttere, A., Froyen, L., and De Bondt, S.
Melting and solidification of metallic composites in space
Adv. Space Res., 6(5), 101-110
1986
Spacelab 1

Enya, S., Kuwahara, K., Morioka, M., and Ochiai, J.
Heat transfer and fluid control techniques problem in space machinery
Heat Trans. in High Technol. and Power Eng., 51-62
1986
Spacelab J

Frischat, G.H.
Microgravity research in glasses and ceramics
J. Br Interplanetary Soc., 39, 90-91
1986
D1

Froyen, L., and Deruyttere, A.
Melting and solidification of metallic composite materials
Naturwissenschaften 73, 384-386
1986
Spacelab 1

Huang, W., Ray, C.S., and Day, D.E.
Dependence of the critical cooling rate for lithium-silicate glass on nucleating agents
J. Non-Cryst. Solids, 86, 204
1986
D1

Langbein, D.
Fluid dynamics
In *Materials Sciences in Space* , eds. B. Feuerbacher, H. Hamacher, and R.J. Naumann, Springer-Verlag Berlin, Heidelberg, 401-424
1986
Spacelab 1

Langbein, D., and Messerschmid, E.
Bemannte Raumfahrt
Phys. Blätter, 42
1986
Spacelab 1

Lee, C.P. and Wang, T.G.
The theoretical model for the annular jet instability
Phys. Fluids, 29(7), 2076-2085
1986
Spacelab 3

Legros, J.C.
Problems related to non-linear variations of surface tension
Acta Astronautica, 13(11/12), 697-703
1986
D1

Limbourg, M.C., Legros, J.C., and Petre, G.
The influence of a surface tension minimum on the convective motion of a fluid in microgravity (D1 mission results)
Adv. Space Res., 6(5), 35-39
1986
D1

Limbourg-Fontaine, M.C., Petre, G., and Legros, J.C.
Thermocapillary movements around a surface tension minimum under microgravity conditions: Part I. Technical description of the STEM experiments, D1 mission of Spacelab
Acta Astronautica, 13(4), 197-208
1986
D1

Lyell, M.J., and Wang, T.G.
Oscillations of a viscous compound drop
Phys. Fluids, 29(10), 3481-3483
1986
Spacelab 3

Martinez, I., and Perales, J.M.
Liquid bridge stability data
J. Crystal Growth, 78, 369-378
1986
Spacelab 1, D1, D2

Mason, P.V., Petrac, D., Elleman, D.D., Wang, T.G., Jackson, H.W., Collins, D.J., Cowgill, P.J., and Gatewood, J.R.
The preliminary results of the Spacelab 2 Superfluid Helium Experiment
In *Advances in Cryogenic Engineering (Vol. 31)*, ed. R. W. Fast, Plenum Publishing Corporation
1986
Spacelab 2

Neuhaus, D.
Bubble motions induced by a temperature gradient
Naturwissenschaften 73, 348-349
1986
D1

Ray, C.S., and Day, D.E.
Crystallization of baria-titania-silica glasses
J. Non-Cryst. Solids, 81, 173
1986
D1

Södervall, H., Odelius, H., Lodding, A., Frohberg, G., and Wever, H.
SIMS study of self diffusion in liquid tin and associated isotope effects
Springer Ser. Chem. Phys., 41
1986
Spacelab 1

Straub, J., Lange, R., Nitsche, K., and Kemmerle, K.
Isochoric specific heat of sulfur hexafluorid at the critical point: laboratory results and outline of a Spacelab experiment for the D1 mission in 1985
Int. J. Thermophysics, 7(2), 343-356
1986
D1

Trinh, E., Robey, J., Jacobi, N., and Wang, T.G.
Dual temperature acoustic levitation and sample transport apparatus
J. Acoust. Soc. Am., 79(3)
1986
Spacelab 3

Wang, T.G.
Applications of acoustics in space
In *Frontiers in Physical Acoustics*, Societié Italiana de Fisica, North Holland Publishing Co.
1986
Spacelab 3

Microgravity Science

Wang, T.G.
Spherical shell technology and science
In *Microgravity Science and Applications*, National Academy Press
1986
Spacelab 3

Wang, T.G., Trinh, E., Croonquist, A.P., and Elleman, D.D.
The shapes of rotating free drops: Spacelab experimental results
Phys. Rev Lett., 56, 452-455
1986
Spacelab 3

Authier, A.
Fluid science and material science in space
In *Springer-Verlag 1987*, ed. H. Walters, 405
1987
Spacelab 1

Favier, J.J., Langbein, D., and Monti, R.
Influence of residual accelerations on fluid physics and materials science experiments
In *Fluid Science and Materials Science in Space*, ed. H.U. Walter, Springer, 637-680
1987
D1, D2

Frohberg, G., Kraatz, K.H., and Wever, H.
Investigations on self- and interdiffusion in liquid metals
Mater. Sci. Forum 15-18, 529
1987
Spacelab 1

Haynes, M., Langbein, D., and Martinez, I.
Fluid statics and capillarity
In *Fluid Science and Materials Science in Space*, Chapter II, H.U. Walter (ed.), Springer, 53-81
1987
D1

Jeschke, V., and Frischat, G.H.
Glass bubbles in glass melts under microgravity: Part 2. Helium diffusion
Phys. and Chem. Glasses, 28(5)
1987
D1

Kamotani, Y., and Ostrach, S.
Design on thermocapillary flow experiment in reduced gravity
J Thermophys. Heat Transfer, 1(1), 83-89
1987
USML-1

Langbein, D.
Fluid physics under microgravity: Status report after the German Spacelab D-1 mission
Appl. Microgravity Tech., I, 67-76
1987
D1

Malméjac, Y., and Frohberg, G.
Mass transport by diffusion
In *Fluid Sciences in Space*, ed. H. U. Walter, Springer Verlag Berlin, Heidelberg, 159-190
1987
Spacelab 1

Martinez, I., and Perales, J.M.
Bidimensional liquid bridges in a gravity field
Acta Astronautica, 15, 567-571
1987
Spacelab 1, D1, D2

Perales, J.M.
Non-axisymmetric effects on long liquid bridges
Acta Astronautica, 15, 561-565
1987
Spacelab 1, D1, D2

Ray, C.S., Huang, W., and Day, D.E.
Crystallization kinetics of lithia-silica glasses: Effect of composition and nucleating agents
J. Am. Ceram. Soc., 70, 599
1987
D1

Robey, J.L., Trinh, E.H., and Wang, T.G.
Acoustic force measurement in a dual-temperature resonant chamber
J Acoust. Soc. Am., 82(3)
1987
Spacelab 3

Authier, A.
A comparative study of gel grown and space grown lead hydrogen phosphate crystals
J. Crystal Growth, 88, 499-510
1988
Spacelab 1

Barbieri, F., and Patuelli, C.
Eutectic structures of AgCu after melting and solidification in microgravity and on Earth
Met. Trans., 19A, 2659
1988
Spacelab 1

Barbieri, F., Gondi, P., and Patuelli, C.
Melting and solidification in microgravity of sintered aluminum powder alloys
Met. Trans., 19A, 2695
1988
Spacelab 1

Braetsch, V., and Frischat, G.H.
Influence of microgravity on glass and crystal formation in the system Li_2O-SiO_2
Phys. and Chem. Glasses, 29(5), 169-172
1988
D1

Duffar, T., Potard, C., and Dusserre, P.
Growth analysis of the InSb compound by a calorimetric method in microgravity: Results of the Spacelab-D1 experiment
J Crystal Growth, 92, 467-478
1988
D1

Gammel, P.M., Croonquist, A.P., and Wang, T.G.
A high-powered siren for stable acoustic levitation of dense materials in the Earth's gravity
J. Acoust. Soc. Am., 83(2)
1988
Spacelab 3

Langbein, D.
Problems in fluid statics and fluid dynamics under microgravity conditions
In *Free Boundary Problems: Theory and Applications*, eds. K.H. Hoffman and J. Spreckels, Longman Group Ltd., 110-137
1988
D1, D2

Lee, C.P., and Wang, T.G.
Acoustic radiation force on a heated sphere including effects of heat transfer and acoustic streaming
J. Acoust. Soc. Am., 83(4), 1324-1331
1988
Spacelab 3

Lee, C.P., and Wang, T.G.
Acoustic radiation potential on a small sphere due to two orthogonal standing waves
J. Acoust. Soc. Am., 83
1988
Spacelab 3

Lee, C.P., and Wang, T.G.
The centering dynamics of a thin liquid shell in capillary oscillations
J. Fluid Mech., 188, 411-435
1988
Spacelab 3

Tensi, H.M.
Auswirkung unterscheidlicher Konvektionsarten auf die dendritische Erstarrungsfront einer $AlSi_7$ Legierung
Z. Metallkde., 79, 459-466
1988
D1, D2

Tensi, H.M.
Influence of microgravity on the morphology of the directionally solidified front in an $AlSi_7$ alloy
Met. Trans., 19A, 2681-2686
1988
D1, D2

Tensi, H.M., Schmidt, J.J., and Mackrodt, C.
The influence of thermal gravitational convection on solid-liquid interface diffusion
In *The Institute of Metals*, Book 421, 534-536
1988
D1, D2

Wang, T.G.
Containerless science for materials processing
In *Commercial Opportunities in Space*, eds. F. Shahrokh, C. C. Chao, and K. E. Harwell, AIAA Volume 110, Progress in Astronautics and Aeronautics
1988
Spacelab 3

Wang, T.G.
Equilibrium shapes of rotating spheroids and drop shape oscillations
Adv. Appl. Mech., 26
1988
Spacelab 3

Yoo, H., Wilcox, W.R., Lal, R.B., and Trolinger, J.D.
Modelling the growth of triglycine sulfate crystals in Spacelab-3
J. Crystal Growth, 92, 101
1988
Spacelab 3

Banan, M., Lal, R.B., Batra, A.K., and Aggarwal, M.D.
Effect of pooling on the morphology and growth rate of TGS crystals
Crystal Res. and Technol., 24(3), K53
1989
Spacelab 3

Bhat, T.B., Wang, T.G., and Gibson, L.J.
Microsandwich honeycomb
Soc. Adv. Mater. and Proc. Eng. J., 25(43)
1989
Spacelab 3

Deruyttere, A., Froyen, L., and De Bondt, S.
Metal matrix composites: A bird's eye view
Bull. Mater. Sci., 12(3&4), 217-223
1989
Spacelab 1

Frohberg, G., Kraatz, K.H., Wever, H., Lodding, A., and Odelius, H.
Diffusion in liquid alloys under microgravity
Defect and Diffusion Forum, 66-69, 295-300
1989
Spacelab 1

Langbein, D.
Flüssigkeiten schwerelos
Spektrum der Wissenschaft, (Juli), 62-69
1989
D1, D2

Lee, C.P., and Wang, T.G.
Near-boundary streaming around a small sphere due to two orthogonal standing waves
J. Acoust. Soc. Am., 85(3), 1081-1088
1989
Spacelab 3

Lee, C.P., and Wang, T.G.
The theoretical model for the annular jet instability - revisited
Phys. Fluids, 1(6), 967-974
1989
Spacelab 3

Lowry, S.A., McCay, M.H., McCay, T.D., and Gray, P.A.
Surface tension measurements of aqueous ammonium chloride in air
J. Crystal Growth, 96, 774-776
1989
IML-1

McCay, M.H., and McCay, T.D.
Processing of metallic and electronic materials in space
In *Principles of Solidification and Materials Processing*, eds. R. Trivedi, J. Sekhar, and J. Mazumdar, Oxford Pub. Co., Vol. II, 547-563
1989
IML-1

McCay, T.D., McCay, M.H., and Gray, P.A.
Experimental observation of convective breakdown during directional solidification
Phys. Rev. Lett., 2060-2063
1989
IML-1

McCay, T.D., McCay, M.H., Lowry, S.A., and Smith, L.M.
Convective instabilities during directional solidification
J. Thermophys. Heat Transfer, 3, 345-350
1989
IML-1

Sanz, A., and Perales, J.M.
Liquid bridge formation
Appl. Microgravity Tech., 2, 133-141
1989
Spacelab 1, D1, D2

Tensi, H.M., and Mackrodt, C.
Possibilities of investigating the crystallization parameters at unidirectional solidification
Appl. Microgravity Tech., 2, 68-74
1989
D1, D2

Tensi, H.M., Schmidt, J.J., and Mackrodt, C.
Influence of microgravity on the morphology of the eutectic volume between the dendrites and on the coarsening of dendrites
Trans. Tech. Pub. 50, 45-63
1989
D1, D2

Allen, J.L., and Wang, T.G.
High-efficiency acoustic chamber
J. Acoust. Soc. Am., 87(1), S21
1990
Spacelab 3

Angel, P.W., Ray, C.S., and Day, D.E.
Glass formation and properties in the calcia-gallia-silica system
J. Am. Ceram. Soc., 73, 2965
1990
D1

Bhat, B.T., and Wang, T.G.
A comparison of mechanical properties of some foams and honeycombs
J Mater. Sci., 25, 5157-5162
1990
Spacelab 3

Doi, M., Sawai, S., Kato, M., and Wada, N.
Gas evaporation of Zn by means of the top-heating vertical furnace
Japan. J. Appl. Phys., 29, 2401-2405
1990
Spacelab J

Duffar, T., Paret-Harter, I., and Dusserre, P.
Crucible de-wetting during Bridgman growth of semiconductors in microgravity
J. Crystal Growth, 100, 171-184
1990
D1

Langbein, D.
Crystal growth from liquid columns
J. Crystal Growth, 104, 47-59
1990
D1, D2

Langbein, D.
Fluid statics and dynamics in microgravity
J. Physics Condens. Matter, 2, 491-498
1990
D1, D2

Langbein, D.
Quality requirements for microgravity experiments
Microgravity Sci. and Technol., 3, 138-142
1990
D1, D2

Langbein, D.
The shape and stability of liquid menisci in solid edges
J. Fluid Mech., 213, 251-265
1990
D1, D2

Microgravity Science

Langbein, D., Grossbach, R., and Heide, W.
Parabolic flight experiments on fluid surfaces and wetting
Appl. Microgravity Tech., 2, 198-211
1990
D1, D2

Lee, C.P., and Wang, T.G.
Outer acoustic streaming
J. Acoust. Soc. Am., 88(5), 2367-2375
1990
Spacelab 3

McCay, M.H., McCay, T.D., and Smith, L.M.
Solidification studies using a confocal optical signal processor
Appl. Optics, 29(5), 699-703
1990
IML-1

Meseguer, J., Sanz, A., and Perales, J.M.
Axisymmetric long liquid bridges stability and resonances
Appl. Microgravity Tech., 2, 186-192
1990
Spacelab 1, D1, D2

Perales, J.M., Sanz, A., and Rivas, D.
Eccentric rotation of a liquid bridge
Appl. Microgravity Tech., 2, 193-197
1990
Spacelab 1, D1, D2

Ray, C.S., and Day, D.E.
Determining the nucleation rate curve for lithium disilicate glass by differential thermal analysis
J. Am. Ceram. Soc., 73, 439
1990
D1

Ray, C.S., and Day, D.E.
Glass melting in microgravity
J. Japan. Soc. Microgravity Appl., 7, 94-108
1990
D1

Tensi, H.M., and Mackrodt, C.
Einfluß der Schwerekonvektion auf den Stofftransport vor der Erstarrungsfront einer gerichtet erstarrenden AlCu-Legierung
Z. Metallkde., 5, 367-372
1990
D1, D2

Uchida, H., Ochiai, J., Kuwahara, K., Yokohama, S., and Enya, S.
Numerical simulation of natural convection in crystal growth in space and on the Earth
Heat and Mass Trans. Mater. Process., 204-214
1990
Spacelab J

Wang, T.G., Allen, J.L., and Anilkumar, A.V.
Acoustic levitation and manipulation
J. Acoust. Soc. Am., 87(1), S32
1990
Spacelab 3

Anilkumar, A.V., Lee, C.P., and Wang, T.G.
Surface-tension-induced mixing following coalescence of initially stationary drops
Phys. Fluids A, 3(11), 2587-2591
1991
Spacelab 3

Microgravity Science

Barbieri, F., Giunchi, G., Grenni, G., and Patuelli, C.
Aluminum matrix composite solidification in microgravity: Effect of the reinforcing phase on nucleation
Adv. Space Res., 11, 337
1991
Spacelab 1

Bezdenejnykh, N.A., and Meseguer, J.
Stability limits of minimum volume and breaking of axisymmetric liquid bridges between unequal disks
Microgravity Sci. and Technol., 4, 235-239
1991
Spacelab 1, D1, D2

Concus, P., and Finn, R.
Exotic containers for capillary surfaces
J. Fluid Mech., 224, 383-394 and Corrigendum, 232, 689-690
1991
USML-1

Da Riva, I., and Sanz, A.
Condensation in ducts
Microgravity Sci. and Technol., 4, 179-187
1991
Spacelab 1, D1, D2

Duffar, T., and Harter, I.
Consequence of wetting phenomena on the growth of semiconductor crystals on Earth and in space: Two examples
Ann. Chim. Fr., 16, 123-131
1991
D1

Eastmond, G.C., and Patuelli, C.
Morphologies of metals and polymeric alloys in microgravity
Adv. Space Res., 11, 337
1991
Spacelab 1

Froyen, L., De Bondt, S., and Deruyttere, A.
Liquid phase processing of ODS aluminum alloys
Mater. Sci. Forum 77, 61-69
1991
Spacelab 1

Langbein, D.
Drop and bubble migration in large Reynolds and Marangoni numbers
Adv. Space Res., 11/7, 167-172
1991
D1, D2

Langbein, D.
Motion of ensembles of spherical particles in a fluid due to G-jitter
Adv. Space Res., 11/7, 189-196
1991
D1, D2

Lee, C.P., Anilkumar, A.V., and Wang, T.G.
Static shape and instability of an acoustically levitated liquid drop
Phys. Fluids A, 3(11), 2497-2515
1991
Spacelab 3

Lopez-Diez, J.
Low-Marangoni low-Reynolds numbers capillary flow inside a slender liquid bridge
Microgravity Sci. and Technol., 3, 222-230
1991
Spacelab 1, D1, D2

Meseguer, J., and Perales, J.M.
A linear analysis of g-jitter effects on viscous cylindrical liquid bridges
Phys. Fluids A, 3, 2332-2336
1991
Spacelab 1, D1, D2

Meseguer, J., and Perales, J.M.
Viscosity effects on the dynamics of long axisymmetric liquid bridges
Microgravity Sci. and Technol., 4, 139-142
1991
Spacelab 1, D1, D2

Meseguer, J., Perales, J.M., and Bezdenejnykh, N.A.
Theoretical approach to impulsive motion of viscous liquid bridges
Microgravity Q., 1, 215-219
1991
Spacelab 1, D1, D2

Nicolas, J.A.
Frequency response of axisymmetric liquid bridges to an oscillatory microgravity field
Microgravity Sci. and Technol., 4, 188-190
1991
Spacelab 1, D1, D2

Perales, J.M., Meseguer, J., and Martinez, I.
Minimum volume of axisymmetric liquid bridges between unequal disks in an axial microgravity field
J. Crystal Growth, 110, 855-861
1991
Spacelab 1, D1, D2

Ray, C.S., Huang, W., and Day, D.E.
Crystallization kinetics of lithia-silica glass: Effect of sample characteristics and measurement techniques
J. Am. Ceram. Soc., 74, 60
1991
D1

Rivas, D.
High-Reynolds-number thermocapillary flows in shallow enclosures
Phys. Fluids A, 3, 280-291
1991
Spacelab 1, D1, D2

Rivas, D.
Viscous effects on the free surface deformation in thermocapillary flows
Phys. Fluids A, 3, 2466-2467
1991
Spacelab 1, D1, D2

Steiner, B., Dobbyn, R.C., Black, D., Burdette, H., Kuriyama, M., Spal, R., van den Berg, L., Fripp, A., Simcheck, R., Lal, R.B., Batra, A.K., Matthiesen, D., and Ditchek, B.
High resolution synchrotron x-radiation diffraction imaging of crystals grown in microgravity and closely related terrestrial crystals
J. Res. Natl. Inst. Stand. Technol., 96, 305
1991
IML-1

Trolinger, J.D., Lal, R.B., and Batra, A.K.
Holographic Instrumentation for monitoring crystal growth in space
Optical Eng., 30, 1608
1991
IML-1

Wada, N., Tani, M., Sato, T., Kato, M., Doi, M., and Sawai, S.
R. F. discharge in low gravity
J. Japan. Soc. Microgravity Appl., 8, 168-177
1991
Spacelab J

Xu, X.J., Ray, C.S., and Day, D.E.
Nucleation and crystallization of Na_2O-2CaO-3SiO_2 glass by DTA
J Am. Ceram. Soc., 74, 909-914
1991
D1

Yang, L., Batra, A.K., and Lal, R.B.
Growth and characteristics of TGS crystals grown by cooled sting technique
Ferroelectrics, 118, 85
1991
IML-1

Banan, M., Lal, R.B., and Batra, A.K.
Modified triglycine sulfate (TGS) single crystals for pyroelectric infrared detector applications
J. Mater. Sci., 27, 2291
1992
IML-1

Battaile, C.C., Grugel, R.N., Hmelo, A.B., and Wang, T.G.
Effects of a high-gravity gradient on microstructural development during controlled directional solidification of lead-tin alloys
In *The Minerals, Metals, and Materials Society*, eds. E. J. Lavernia and M. N. Gungor, 161-172
1992
Spacelab 3, USML-1

Bezdenejnykh, N.A., Meseguer, J., and Perales, J.M.
Experimental analysis of stability limits of capillary liquid bridges
Phys. Fluids A, 4, 677-680
1992
Spacelab 1, D1, D2

Concus, P., and Finn, R.
Capillary surfaces in exotic containers
In *Hydrodynamics and Heat/Mass Transfer in Microgravity*, eds. V. S. Avduevsky, et al., Gordon and Breach, London, 193-196
1992
USML-1

Concus, P., Finn, R., and Weislogel, M.
Drop-tower experiments for capillary surfaces in an exotic container
AIAA J., 30, 134-137
1992
USML-1

Doi, M., Sawai, S., Kato, M., and Wada, N.
Molecular process of evaporation
Japan. J Appl. Phys., 31, 3957-3962
1992
Spacelab J

Finn, R., and Vogel, T.I.
On the volume infimum for liquid bridges
Zeit. Anal. Anwend., 11, 3-23
1992
USML-1

Grugel, R.N., Shinwoo K., Woodward, T., and Wang, T.G.
The effect of axial crucible rotation on microstructural uniformity during horizontal directional solidification
J. Crystal Growth, 121, 599-607
1992
Spacelab 3

Kamotani, Y., and Platt, J.
Effect of free surface shape on combined thermocapillary and natural convection
J. Thermophys. Heat Transfer, 6(4), 721-726
1992
USML-1

Kamotani, Y., Lee, J.H., Ostrach, S., and Pline, A.
An experimental study of oscillatory thermocapillary convection in cylindrical containers
Phys. Fluids, 4, 955-962
1992
USML-1

Langbein, D.
Drop and bubble migration at moderate Reynolds and Marangoni numbers
In *Microgravity Fluid Mechanics*, ed. H.J. Rath, Springer, 413-425
1992
D1, D2

Langbein, D.
Oscillations of finite liquid columns
Microgravity Sci. and Technol., 5, 73-85
1992
D1, D2

Langbein, D.
Particle migration at melting and solidification fronts
In *Microgravity Fluid Mechanics*, ed. H.J. Rath, Springer, 541-553
1992
D1, D2

Langbein, D.
Stability of liquid bridges between parallel plates
Microgravity Sci. and Technol., 5, 2-11
1992
D1, D2

Lee, C.P., and Wang, T.G.
Nonlinear resonance and viscous dissipations in an acoustic chamber
J. Acoust. Soc. Am., 92(4), 2195-2206
1992
Spacelab 3

Lee, C.P., and Wang, T.G.
The effects of pressure on the nucleation rate of an undercooled liquid
J Appl. Phys.
1992
Spacelab 3

Lowry, S.A., McCay, T.D., and McCay, M.H.
An ad hoc non-equilibrium numerical model of the solidification of the binary metal model NH_4Cl-H_2O
In *Micro/Macro Scale Phenomena in Solidification*, HTD-Vol. 218, AMD-Vol. 139, ed. C. Beckermann, ASME, 1-8
1992
IML-1

Martinez, I.
Fluid science requirements for Columbus
Space Technol., 12, 135-144
1992
Spacelab 1, D1, D2

Meseguer, J., and Perales, J.M.
Non-steady phenomena in the vibration of viscous cylindrical long liquid bridges
Microgravity Sci. and Technol., 5, 69-72
1992
Spacelab 1, D1, D2

Meseguer, J., and Perales, J.M.
Viscosity effects on the dynamics of long axisymmetric liquid bridges
In *Microgravity Fluid Mechanics*, ed. H. J Rath, Springer-Verlag, Berlin, 37-46
1992
Spacelab 1, D1, D2

Meseguer, J., Perales, J.M., and Bezdenejnykh, N.A.
Impulsive motion of viscous, axisymmetric liquid bridges
In *Hydromechanics and Heat/Mass Transfer in Microgravity*, ed. V S. Avduevsky, Gordon and Breach Science Publishers, Montreux, 203-208
1992
Spacelab 1, D1, D2

Perales, J.M., and Meseguer, J.
Theoretical and experimental study of the vibration of axisymmetric viscous liquid bridges
Phys. Fluids A, 4, 1110-1130
1992
Spacelab 1, D1, D2

Rivas, D.
Deformation of non-planar free surfaces in thermocapillary flows in shallow enclosures
Microgravity Sci. and Technol., 5, 12-20
1992
Spacelab 1, D1, D2

Rivas, D., and Ostrach, S.
Scaling of low-Prandtl-number thermocapillary flows
Int. J. Heat and Mass Transfer, 35, 1469-1479
1992
Spacelab 1, D1, D2

Rivas, D., Sanz, J., and Vasquez, C.
Temperature field in a cylindrical crystal heated in a mono-ellipsoid mirror furnace
J. Crystal Growth, 116, 127-138
1992
Spacelab 1, D1, D2

Sanz-Andres, A., and Espino, J.L.
Velocity measurements by PIV in flames
In *Microgravity Fluid Mechanics*, ed., H. J. Rath, Springer-Verlag, Berlin, 363-372
1992
Spacelab 1, D1, D2

Shen, X., Grugel, R.N., Anilkumar, A.V., and Wang, T.G.
The influence of controlled surface streaming on thermocapillary convection during float-zone processing
In *Microstructural Design by Solidification Processing*, eds., E. J. Lavernia and M. N. Gugnor, The Minerals, Metals, & Materials Week 173-182
1992
Spacelab 3, USML-1

Albara, S.
Protein crystal growth in microgravity
Seikagaku, 65, 109-115
1993
Spacelab J

Anilkumar, A.V., Grugel, R.N., Shen, X.F., Lee, C.P., and Wang, T.G.
Control of thermocapillary convection in a liquid bridge by vibration
J. Appl. Phys., 73(9), 4165-4170
1993
Spacelab 3, USML-1

Anilkumar, A.V., Lee, C.P., and Wang, T.G.
Stability of an acoustically levitated and flattened drop: an experimental study
Phys. Fluids A, 5(11), 2763-2774
1993
Spacelab 3, USML-1

Asaki, T.J., Marston, P.L., and Trinh, E.H.
Shape oscillations of bubbles in water driven by modulated ultrasonic radiation pressure. Observations and detection with scattered laser light
J. Acoust. Soc. Am., 93, 706-713
1993
USML-1

DeLucas, L.J., Moore, K.M., Bray, T.L., Rosenblum, W.M., Einspahr, Clancy, L.L., Rao, G.S.J., Harris, B.G., Munson, S.H., Finzel, B.C., and Bugg, C.E.
Protein crystal growth results from the United States Microgravity Laboratory-1 mission
J. Phys. D, 26, B100-B103
1993
USML-1

Hopkins, J.A., McCay, T.D., and McCay, M.H.
Two-phase flow considerations for the linear analysis of convective stability during vertical directional dendritic solidification
In *Heat Transfer in Porous Media*, eds. M. Faghri and L. C. Burmeisth, HTD-Vol. 235, Book No. G00797, 67-76
1993
IML-1

Lal, R.B., and Batra, A.K.
Growth and properties of triglycine sulfate (TGS) crystals: Review
Ferroelectrics 142, 51
1993
IML-1

Langbein, D.
Fluid dynamic interactions between spherical particles
Microgravity Sci. and Technol., 6, 260-269
1993
D1, D2

Langbein, D.
Fluid Physics
In *Research in Space - The German Spacelab Missions*, eds. P.R. Sahm, M.H. Keller, and B. Schiewe, WPF, 91-114
1993
D1, D2

Langbein, D.
Oscillations of finite liquid columns
GAMM-Mitteilungen, 6-26
1993
D1, D2

Langbein, D.
Theoretical aspects of particle interactions in dispersions
Adv. Colloid Interface Sci., 46, 91-116
1993
D1, D2

Lee, C.P., and Wang, T.G.
Acoustic radiation force on a bubble
J. Acoust. Soc. Am., 93(3), 1637-1640
1993
Spacelab 3, USML-1

Lee, C.P., and Wang, T.G.
Acoustic radiation pressure
J. Acoust. Soc. Am., 94(2), 1099-1109
1993
Spacelab 3, USML-1

McCay, M.H., and McCay, T.D.
The measurement of transient dendrite tip supersaturation in NH_4Cl-H_2O using optical techniques
J. Cryst. Growth, 126, 223-228
1993
IML-1

McCay, M.H., McCay, T.D., and Hopkins, J.A.
Optical analyses of fluid flow effects on directional dendritic solidification rates in NH_4Cl-H_20 solution
In *Heat Transfer in Melting, Solidification and Crystal Growth*, eds. I. S. Habib and S. Thynell, HTD-Vol. 235, Book No. G00791, 1-11
1993
IML-1

McCay, M.H., McCay, T.D., and Hopkins, J.A.
The nature and influence of convection on the directional dendritic solidification of a metal alloy analog, NH_4Cl and H_2O
Met. Trans., 24B, 669-675
1993
IML-1

McCay, T.D., and McCay, M.H.
Measured and predicted effects of gravity level on directional dendritic solidification of NH_4Cl-H_2O
Microgravity Sci. and Technol., VI/1, 2-12
1993
IML-1

McCay, T.D., Hopkins, J.A., and McCay, M.H.
Influence of gravity level on free convective effects during Bridgman directional dendritic solidification of NH_4Cl-H_2O
In *Heat Transfer in Microgravity Systems*, eds. S. S. Sadhal and A. Hashemi, HTD-Vol. 235, Book No. G00792, 11-23
1993
IML-1

Patuelli, C., and Tognato, R.
Ground preparatory activity to a microgravity experiment on the effect of the reinforcing phase on nucleation of Al matrix composites
Microgravity Q., 3, 199
1993
Spacelab 1

Sawai, S., Doi, M., Kato, M., and Wada, N.
Measurement of vapor distribution in gas evaporation without convection by atomic absorption method
Japan. J. Appl. Phys., 32, 1025-1030
1993
Spacelab J

Slobozhanin, L.A., and Perales, J.M.
Stability of liquid bridges between equal disks in an axial gravity field
Phys. Fluids A, 5, 1305-1314
1993
Spacelab 1, D1, D2

Straub, J.
How microgravity supports research in heat transfer
Therm. Sci. and Engr., 32(127), 96-116
1993
D1

Straub, J.
The role of surface tension for two-phase heat and mass transfer in the absence of gravity
In *Experimental Heat Transfer, Fluid Mechanics and Thermodynamics*, Vol. 1, eds. M.D. Kelleher, et.al., Elsevier Science Publishers, 103-125
1993
D1

Straub, J., and Nitsche, K.
Isochoric heat capacity c_v at the critical point of SF_6 under micro- and Earth-gravity--Results of the German Spacelab mission D1
Fluid Phase Equilibria, 88, 183-208
1993
D1

Straub, J., Haupt, A., and Nitsche, K.
Radiation calorimeter for heating and cooling ramps used for hysteresis measurements at phase transition
Fluid Phase Equilibria, 88, 123-135
1993
D1

Straub, J., Winter, J., Picker, G., Zell, M., and Abe, Y.
Bubble growth experiment at JAMIC drop shaft - pretests for a BDPU experiment on IML-2
Microgravity Sci. and Technol., 6(4), 248-251
1993
IML-2

Tensi, H.M., and Rösch, R.
Interdendritic eutectic solidification of an $AlSi_7$ alloy under microgravity
Met. Trans., 24B, 208-212
1993
D1, D2

Zou, H., Froyen, L., Delaey, L., and Deruyttere, A.
Computer simulation of microstructural evolution during liquid phase processing of metallic matrix composites
Microgravity Sci. and Technol., V(4), 211-220
1993
Spacelab 1

Ahrens, S., Falk, F., Grossbach, R., and Langbein, D.
Experiments on oscillations of small liquid bridges
Microgravity Sci. and Technol., 7, 2-5
1994
D1, D2

Aibara, S.
Protein crystal growth in microgravity environment
Kagakukougaku, 58, 292-298
1994
Spacelab J

Microgravity Science

Aibara, S., and Morita, Y.
Crystal growth of enzymes in space microgravity
(IN PRESS) Biol. Sci. Space, 7
1994
Spacelab J

Anilkumar, A.V., Lee, C.P., Lin, K.C., and Wang, T.G.
Core-centering of compound drops in capillary oscillations: observations on USML-1 experiments in space
J. Colloid and Interface Sci., 165(1)
1994
USML-1

Betzel, C., Gunther, N., Poll, S., Moore, K., DeLucas, L.J., Bugg, C.E., and Weber, W.
Crystallization of the EGF Receptor Ectodomain on U.S. space mission STS-47
Microgravity Sci. Tech., 7, 242-245
1994
Spacelab J

DeLucas, L.J., Long, M.M., Moore, K.M., Rosenblum, W.M., Bray, T.L., Smith, C., Carson, M., Narayana, S.V.L., Carter, D., Clark, A.D., Jr., Nanni, R.G., Ding, J., Jacobo-Molina, A., Kamer, G., Hughes, S.H., Arnold, E., Einspahr, H.M., Clancy, L.L., Rao, G.S.J., Cook, P.F., Harris, B.G., Munson, S.H., Finzel, B.C., McPherson, A., Weber, P.C., Lewandowski, F., Nagabhushan, T.L., Trotta, P.P., Reichert, P., Navia, M.A., Wilson, K.P., Thomson, J.A., Richards, R.R., Bowersox, K.D., Meade, C.J., Baker, E.S., Bishop, S.P., Dunbar, B.J., Trinh, E., Prahl, J., Sacco, Jr., A., and Bugg, C.E.
Recent results and new hardware developments for protein crystal growth in microgravity
J. Crystal Growth, 135, 183-195
1994
IML-1, USML-1

Kamotani, Y., Ostrach, S., and Pline, A.
A thermocapillary experiment in microgravity
In *Heat Transfer in Microgravity*, eds. C.T. Avedesian and Arpachi, V.A., ASME HTD, Vol. 269, 23-30
1994
USML-1

Kamotani, Y., Ostrach, S., and Pline, A.
Analysis of velocity data taken in Surface Tension Driven Experiment in microgravity
(IN PRESS) Phys. Fluids
1994
USML-1

Wang, T.G., Anilkumar, A.V., Lee, C.P., and Lin, K.C.
Bifurcation of rotating liquid drops: Results of USML-1 experiments in space
(IN PRESS) J. Fluid Mech.
1994
USML-1

SPACE PLASMA PHYSICS

Mendillo, M., and Forbes, J.
Artificially-created holes in the ionosphere
J. Geophys. Res., 83, 151
1978
Spacelab 2

Bernhardt, P.A., Klobuchar, J.A., Villard, O.G., Simpson, R., Troster, J.G., Mendillo, M., and Reisert, J.M.
The great ionospheric hole experiment
QST, LXIII, 22-23
1979
Spacelab 2

Kuriki, K.
The MPD thruster test on the Space Shuttle
J. Spacecraft and Rockets, 16(5), 326
1979
Spacelab 1

Mendillo, M., Baumgardner, J., and Klobuchar, J.A.
Opportunity to observe a large-scale hole in the ionosphere
EOS Trans. Am. Geophys. Union, 60, 513-514
1979
Spacelab 2

Mendillo, M.
Use of the Italian Satellite Program (SIRIO) for ionospheric modification studies
Alta Frequenza XLIV, 362
1980
Spacelab 2

Mendillo, M., Herniter, B., and Rote, D.
Modification of the aerospace environment by large space vehicles
J. Spacecraft and Rockets, 17, 226-231
1980
Spacelab 2

Mendillo, M., Rote, D., and Bernhardt, P.A.
Preliminary report on the HEAO hole in the ionosphere
EOS Trans. Am. Geophys. Union, 61, 529-530
1980
Spacelab 2

Banks, P.M., Williamson, P.R., and Oyama, K.I.
Electrical behavior of a Shuttle Electrodynamic Tether System (SETS)
Planet. Space Sci., 29, 139-147
1981
OSS-1

Banks, P.M., Williamson, P.R., and Oyama, K.I.
Shuttle orbiter tethered satellite for exploring and tapping space plasmas
AIAA J. Aero. and Astro., 19, 31-33
1981
OSS-1

Mendillo, M.
The effect of rocket launches on the ionosphere
Adv. Space Res., 1, 275-290
1981
Spacelab 2

Sasaki, S., Kawashima, N., Yamori, A., Obayashi, T., and Kaneko, O.
Laboratory experiments on spacecraft charging and its neutralization
Adv. Space Res., No. 1, 417-420
1981
Spacelab 1

Banks, P.M., Neupert, W.M., Brueckner, G.E., Chipman, E.G., Cowles, J., McDonnell, J.A., Novick, R., Ollendorf, S., Shawhan, S.D., Triolo, J.J., and Weinberg, J.L.
Science on the Space Shuttle
Nature, 296, 1-5
1982
OSS-1, Spacelab 1, ATLAS 1

Banks, P.M., Raitt, W.J., and Denig, W.F.
Studies of beam plasma interactions in a space simulation chamber using prototype Space Shuttle instruments
In *Artificial Particle Beams Utilized in Space Plasma Studies*, ed. B. Grandal, Plenum Press, New York, 393-404
1982
OSS-1

Banks, P.M., Raitt, W.J., Denig, W.F., and Anderson, H.R.
Transient effects in beam-plasma interactions in a space simulation chamber stimulated by a fast pulse electron gun
In *Artificial Particle Beams Utilized in Space Plasma Studies*, ed. B. Grandal, Plenum Press, New York, 405-418
1982
OSS-1

Mendillo, M., and Baumgardner, J.
Optical signature of an ionospheric hole
Geophys. Res. Lett., 9, 215
1982
Spacelab 2

Banks, P.M., and Harker, K.J.
Radiation from pulsed electron beams in space plasmas
Radio Sci., 19, 454
1983
OSS-1, Spacelab 1

Banks, P.M., Inan, U.S., Pon, M., Raitt, W.J., Shawhan, S.D., and Williamson, P.R.
Modulated beam injection from the space shuttle during magnetic conjunctions of STS-3 with the DE-1 satellite
Radio Sci., 19, 487
1983
OSS-1

Banks, P.M., Mende, S.B., Nobles, R., Garriott, O.K., and Hoffman, J.
Photographic observations of Earth's airglow from space
Geophys. Res. Lett., 10, 1108-1111
1983
OSS-1

Banks, P.M., Parish, J.L., Denig, W.F., and Raitt, W.J.
A new theory of beam plasma discharge onset time
J. Geophys. Res. (July)
1983
OSS-1

Banks, P.M., Williamson, P.R., and Raitt, W.J.
Space shuttle glow observations
Geophys. Res. Lett., 10, 118-121
1983
OSS-1

Space Plasma Physics

Banks, P.M., Williamson, P.R., Raitt, W.J., and Siskind, D.E.
Interactions between the orbiting space shuttle and the ionosphere
Planet. Space Sci., 32, 881
1983
OSS-1, Spacelab 1

Banks, P.M., Mende, S.B., Nobles, R., Garriott, O.K., and Hoffman, J.
Measurements of vehicle glow on the space shuttle
J. Spacecraft and Rockets, 21, 374
1984
OSS-1, Spacelab 1

Banks, P.M., Raitt, W.J., Siskind, D.E., and Williamson, P.R.
Measurements of the thermal plasma environment of the space shuttle
Planet. Space Sci., 32, 457
1984
OSS-1, Spacelab 1

Banks, P.M., Shawhan, S.D., Murphy, G.B., Williamson, P.R., and Raitt, W.J.
Wave emissions from DC and modulated electron beams on STS-3
Geophys. Res. Lett., 11, 887
1984
OSS-1

Obayashi, T., Kawashima, N., Kuriki, K., Nagatomo, N., Ninomiya, K., Sasaki, S., Yanagisawa, M., Kudo, I., Ejiri, M., Roberts, W.T., Chappell, C.R., Reasoner, D.L., Burch, J.L., Taylor, W.L., Banks, P.M., Williamson, P.R., and Garriott, O.K.
Space experiments with particle accelerators
Science, 225, 4658
1984
Spacelab 1

Sasaki, S., Tazawa, H., Kawashima, N., and Teii, S.
Rotating electrons discharge model for a spacecraft emitting a high power electron beam in space
J. Geomag. Geoelectr., 36, 565-578
1984
Spacelab 1

Wand, R.H., and Mendillo, M.
Incoherent scatter observations of an artificially modified ionosphere
J. Geophys. Res., 89, 203-215
1984
Spacelab 2

Wilhelm, K.
Clouds of electrons in the southern lights
New Scientist, 1418, 46-48
1984
Spacelab 1

Wilhelm, K., Stüdeman, W., and Reidler, W.
Electron flux intensity distributions observed in response to particle beam emissions
Science, 225, 186-188
1984
Spacelab 1

Banks, P.M., and Harker, K.J.
Radiation from long pulse train electron beams in space plasmas
Planet. Space Sci., 33, 953-963
1985
OSS-1, Spacelab 1

Banks, P.M., Rasmussen, C.E., and Harker, K.J.
The excitation of plasma waves by a current source moving in a magnetized plasma: The MHD approximation
J. Geophys. Res., 90, 505
1985
OSS-1, Spacelab 1

Obayashi, T., Kawashima,N., Sasaki, S., Yanagisawa, M., Kuriki, K., Nagatomo, M., Ninomiya, K., Roberts, W.T., Taylor, W.L., Williamson, P.R., Banks, P.M., Reasoner, D.L., and Burch, J.L.
Initial results of SEPAC scientific achievement
Earth-Orient. Applic. Space Technol., 5, 37-45
1985
Spacelab 1

Sasaki, S., Kawashima, N., Kuriki, K., Yanagisawa, M., Obayashi, T., Roberts, W. T., Reasoner, D.L., Taylor, W.W.L., Williamson, P.R., Banks, P.M., and Burch, J.L.
Ignition of beam plasma discharge in the electron beam experiment in space
Geophys. Res. Lett., 12, 647-650
1985
Spacelab 1

Sasaki, S., Kubota, S., Kawashima, N., Kuriki, K., Yanagisawa, M., Obayashi, T., Roberts, W.T., Reasoner, D.L., Taylor, W.W.L., Williamson, P.R., Banks, P.M., and Burch, J.L.
An enhancement of plasma density by neutral gas injection observed in SEPAC Spacelab-1 experiment
J. Geomag. Geoelectr., 37, 883-894
1985
Spacelab 1

Taylor, W.W.L., Obayashi, T., Kawashima, N., Sasaki, S., Yanagisawa, M., Burch, J.L., Reasoner, D.L., and Roberts, W.T.
Wave-particle interactions induced by SEPAC on Spacelab-1: Wave observations
Radio Sci., 20, 486-498
1985
Spacelab 1

Wilhelm, K., Stüdemann, W., and Reidler, W.
Observations of the electron spectrometer and magnetometer (Experiment 1ES019) on board Spacelab 1 in response to electron accelerator operations
Earth-Orient. Applic. Space Technol., 5, 47-55
1985
Spacelab 1

Banks, P.M., and Bush, R.I.
Electron beam experiments in space plasma
IEEE ElectroTech. Rev., 2, 122-123
1986
Spacelab 2

Banks, P.M., Gurnett, D.A., Kurth, W.S., Steinburg, J.T., Bush, R.I., and Raitt, W.J.
Whistler-Mode radiation from the Spacelab-2 electron beam
Geophys. Res. Lett., 13, 225-228
1986
Spacelab 2

Banks, P.M., Rasmussen, C.E., and Harker, K.J.
The minimum distance to the far field in a magnetized plasma
Radio Sci., 21(6), 920-928
1986
OSS-1, Spacelab 1

Murphy, G., Pickett, J., D'Angelo, N., and Kurth, W.S.
Measurements of plasma parameters in the vicinity of the Space Shuttle
Planet. Space Sci., 34, 993-1004
1986
Spacelab 2

Neubert, T., Taylor, W.W.L., Storey, L.R.O., Kawashima, N., Roberts, W.T., Reasoner, D.L., Banks, P.M., Gurnett, D.A., Williams, R.L., and Burch, J.L.
Waves generated during electron beam emissions from the Space Shuttle
J Geophys. Res., 91, 321-329
1986
Spacelab 1

Sasaki, S., Kawashima, N., Kuriki, K., Yanagisawa, M., and Obayashi, T.
Vehicle charging observed in SEPAC Spacelab-1 experiment
J. Spacecraft and Rockets, 23, 194-199
1986
Spacelab 1

Sasaki, S., Kawashima, N., Kuriki, K., Yanagisawa, M., Obayashi, T., Roberts, W.T., Reasoner, D.L., Taylor, W.W.L., Williamson, P.R., Banks, P.M., and Burch, J.L.
Gas ionization induced by a high speed plasma injection in space
Geophys. Res. Lett., 13, 434-437
1986
Spacelab 1

Watermann, J., Wilhelm, K., Torkar, K.M., and Riedler, W.
Observations of artificially induced suprathermal electron fluxes on board Spacelab 1
Mitt. der Astron. Gesellschaft, Nr. 65, 'Kosmische Plasmen, Kleine Körper im Sonnensystem', 166-169
1986
Spacelab 1

Banks, P.M., and Harker, K.J.
Near fields in the vicinity of pulsed electron beams in space
Planet. Space Sci., 35(1), 11-19
1987
OSS-1, Spacelab 1

Banks, P.M., Bush, R.I., Reeves, G.D., Neubert, T., Williamson, P.R., Raitt, W.J., and Gurnett, D.A.
Electromagnetic fields from pulsed electron beam experiments in space: Spacelab-2 results
Geophys. Res. Lett., 14(10), 1015-1018
1987
Spacelab 2

Banks, P.M., Gurnett, D.A., Raitt, W.J., and Steinberg, J.T.
DC electric field measurements near the electron beam on Spacelab-2
Geophys. Res. Lett. (March)
1987
Spacelab 2

Banks, P.M., Raitt, W.J., Eccles, J.V., Thompson, D.C., Bush, R.I., and Williamson, P.R.
Observations in the Space Shuttle orbiter environment
Geophys. Res. Lett. (February)
1987
OSS-1, Spacelab 1, Spacelab 2

Space Plasma Physics

Banks, P.M., Raitt, W.J., Eccles, J.V., Thompson, D.C., Williamson, P.R., and Bush, R.I.
Plasma parameters in the near wake of the Space Shuttle
Geophys. Res. Lett., 14(4), 359-362
1987
OSS-1, Spacelab 1, Spacelab 2

Banks, P.M., Raitt, W.J., Williamson, P.R., White, A.B., and Bush, R.I.
Results from vehicle charging and potential experiment on STS-3
J. Spacecraft and Rockets, 24(2), 138-149
1987
OSS-1

Banks, P.M., Sasaki, S., Kawashima, N., Kuriki, K., Yanagisawa, M., Obayashi, T., Roberts, W.T., Reasoner, D.L., Williamson, P.R., Taylor, W.W., Akai, K., and Burch, J.L.
Neutralization of beam-emitting spacecraft by plasma injection
J. Spacecraft and Rockets, 24(3), 227-231
1987
OSS-1, Spacelab 1

Cai, D., Neubert, T., Storey, L.R.O., Banks, P.M., Sasaki, S., Abe, K., and Burch, J.L.
ELF oscillations associated with electron beam injections from the Space Shuttle
J. Geophys. Res., 92
1987
Spacelab 1

Ellis, G.R.A., Reber, G., and Mendillo, M.
A 1.6 MHz survey of the galactic background radio emission
Austral. J. Phys., 40, 705
1987
Spacelab 2

Mendillo, M., Baumgardner, J., Allen, D., Foster, J., Holt, J., Ellis, G.R.A., Klekociuk, A., and Reber, G.
Spacelab-2 plasma depletion experiments for ionospheric and radioastronomical studies
Science, 238, 1260
1987
Spacelab 2

Neubert, T., Bell, T.F., Storey, L.R.O., and Gurnett, D.A.
The Space Shuttle as a platform for observations of ground-based transmitter signals and whistlers
J. Geophys. Res., 92, 11262-11268
1987
Spacelab 2

Sasaki, S., Akai, K., Kawashima, N., Kuriki, K., Yanagisawa, M., and Obayashi, T.
Effect of plasma injection on the electrical charging of a vehicle emitting an electron beam observed in SEPAC SPACELAB-1 experiment
J. Spacecraft & Rockets, 24, 227
1987
Spacelab 1

Banks, P.M., and Raitt, W.J.
Observations of electron beam structure in space experiments
J. Geophys. Res., 93(6)
1988
OSS-1, Spacelab 2

Banks, P.M., and Rasmussen, C.E.
Theory of the electrodynamic tether
Adv. Space Res., 8(1), 203-211
1988
OSS-1, Spacelab 1

Space Plasma Physics

Banks, P.M., Farrell, W.M., Gurnett, D.A., Bush, R.I., and Raitt, W.J.
An analysis of Whistler-Mode radiation from the Spacelab-2 electron beam
J. Geophys. Res., 93(A1), 153-161
1988
Spacelab 2

Banks, P.M., Reeves, G.D., Fraser-Smith, A.C., Neubert, T., Bush, R.I., Gurnett, D.A., and Raitt, W.J.
VLF wave stimulation by pulsed electron beams injected from the Space Shuttle
J. Geophys. Res., 93, 162-174
1988
Spacelab 2

Ellis, G.R.A., Klekociuk, A., Woods, A.C., Reber, G., Goldstone, G.T., Burns, G., Dyson, P., Essex, E., and Mendillo, M.
Radioastronomy through an artificial ionospheric window: Spacelab-2 observations
Adv. Space Res., 8, 63
1988
Spacelab 2

Frank, L.A., Paterson, W.R., Ashour-Abdalla, M., Schriver, D., Kurth, W.S., Gurnett, D.A., Omidi, N., Banks, P.M., Bush, R.I., and Raitt, W.J.
Electron velocity distributions and plasma waves associated with the injection of an electron beam into the ionosphere
J. Geophys. Res. (December)
1988
Spacelab 2

Gurnett, D.A., Kurth, W.S., Steinberg, J.T., and Shawhan, S.D.
Plasma wave turbulence around the Shuttle: Results from the PDP free flight
J. Geophys. Res. Letters, 15, 760-763
1988
Spacelab 2

Kawashima, N.
Electron beam experiment in space
J. Geomag. Geoelectr., 40, 1269-1281
1988
Spacelab 1

Lieu, R., Watermann, J., Wilhelm, K., Quenby, J.J., and Axford, W.I.
Observations of low-latitude electron precipitation
J Geophys. Res., 93(A5), 4131-4133
1988
Spacelab 1

Mendillo, M.
Ionospheric holes: a review of theory and recent experiments
Adv. Space Res., 8, 51
1988
Spacelab 2

Neubert, T., Hawkins, J.G., Reeves, G.D., Banks, P.M., Bush, R.I., Williamson, P.R., Gurnett, D.A., and Raitt, W.J.
Pulsed electron beam emission in space
J. Geomag. Geoelectr., 40, 1221-1233
1988
OSS-1, Spacelab 2

Reeves, G.D., Banks, P.M., Neubert, T., Bush, R.I., Williamson, P.R., Fraser-Smith, A.C., Gurnett, D.A., and Raitt, W.J.
VLF wave emissions by pulsed and DC electron beams in space: Spacelab-2 observations
J. Geophys. Res., 93(A12), 14699-14718
1988
Spacelab 2

Sasaki, S.
Results from gas injection experiment in SEPAC
J. Geomag. Geoelectr., 40, 1193-1204
1988
Spacelab 1

Steinberg, J.T., Gurnett, D.A., Banks, P.M., and Raitt, W.J.
Double-probe potential measurements near the Spacelab 2 electron beam
J. Geophys. Res., 93, 10001-10010
1988
Spacelab 2

Torkar, K.M., Riedler, W., Wilhelm, K., Watermann, J., and Beghin, C.
Return flux measurements in response to short-time electron beams aboard Spacelab-1
Adv. Space Res., 8(1), 115-118
1988
Spacelab 1

Tribble, A.C., D'Angelo, N., Murphy, G.B., Pickett, J.S., and Steinberg, J.T.
Exposed high-voltage source effect on the potential of an ionospheric satellite
J. Spacecraft and Rockets, 25, 64-69
1988
Spacelab 2

Watermann, J., Wilhelm, K., Torkar, K.M., and Riedler, W.
Space Shuttle charging or beam-plasma discharge: What can electron spectrometer observations contribute to solving the question?
J. Geophys. Res., 93, 4134-4140
1988
Spacelab 1

Watermann, J., Wilhelm, K., Torkar, K.M., and Riedler, W.
Spacelab-1 observations of suprathermal electrons induced by artificial electron beams
Adv. Space Res., 8(1), 111-114
1988
Spacelab 1

Banks, P.M.
Review of electrodynamical tethers for space plasma science
J. Spacecraft and Rockets (March 5)
1989
OSS-1, Spacelab 2

Eccles, J.V., Raitt, W.J., and Banks, P.M.
A numerical model of the electrodynamics of plasma within the contaminant gas cloud of the Space Shuttle orbiter at low Earth orbit
J. Geophys. Res., 94(A7), 9049-9063
1989
OSS-1, Spacelab 2

Farrell, W.M., Gurnett, D.A., and Goertz, C.K.
Coherent Cerenkov Radiation from the Spacelab-2 electron beam
J. Geophys. Res., 94, 443
1989
Spacelab 2

Space Plasma Physics

Frank, L.A., Paterson, W.R., Ashour-Abdalla, M., Schriver, D., Kurth, W.S., Gurnett, D.A., Omidi, N., Banks, P.M., Bush, R.I., and Raitt, W.J.
Electron velocity distributions and plasma waves associated with the injection of an electron beam into the ionosphere
J. Geophys. Res., 94, 6995-7001
1989
Spacelab 2

Harker, K.J., Neubert, T., Banks, P.M., Fraser-Smith, A.C., and Donohue, D.J.
Ground level signal strength of electromagnetic waves generated by pulsed electron beams in space
Radio Sci. (May 3)
1989
OSS-1 Spacelab 1, Spacelab 2

Hawkins, J.G., Banks, P.M., Williamson, P.R., and Raitt, W.J.
The vehicle charging and potential experiment: Current collection by a conducting surface on the shuttle orbiter
J. Geophys. Res. (May 24)
1989
Spacelab 2

Mourenas, D., Beghin, C., and Lebreton, J.P.
Electron cyclotron and upper hybrid harmonics produced by electron beam injection on Spacelab 1
Ann. Geophysicae, 7(5), 519-530
1989
Spacelab 1

Myers, N.B., Raitt, W.J., Gilchrist, B.E., and Sasaki, S.
A comparison of current-voltage relationships of collectors in the Earth's ionosphere with and without electron beam emission
Geophys. Res. Lett., 16, 365
1989
Spacelab 1

Myers, N.B., Raitt, W.J., White, A.B., Banks, P.M., Gilchrist, B.E., and Sasaki, S.
Vehicle charging effects during electron beam emission from the CHARGE-2 experiment
J. Spacecraft and Rockets (March)
1989
Spacelab 1

Nishikawa, K-I., Frank, L.A., and Huang, C.Y.
Three-dimensional simulation of Whistler Mode excited by the Spacelab 2 electron beam
J. Geophys. Res., 94, 6855-6865
1989
Spacelab 2

Paterson, W.R., and Frank, L.A.
Hot ion plasmas from the cloud of neutral gases surrounding the Space Shuttle
J. Geophys. Res., 94, 3721-3727
1989
Spacelab 2

Rasmussen, C.E., Banks, P.M., and Harker, K.J.
The excitation of plasma waves by a current source moving in a magnetized plasma: Two-dimensional propagation
J. Geophys. Res. (February)
1989
OSS-1, Spacelab 1

Gilchrist, B.E., Banks, P.M., Neubert, T., Williamson, P.R., Myers, N.B., Raitt, W.J., and Sasaki, S.
Electron collection enhancement arising from neutral gas jets on a charged vehicle in the ionosphere
J. Geophys. Res., 95, 2469
1990
Spacelab 1

Kurth, W.S., and Frank, L.A.
The Spacelab 2 Plasma Diagnostics Package
J. Spacecr., 27, 70-75
1990
Spacelab 2

Neubert, T., Banks, P.M., Gilchrist, B.E., Fraser-Smith, A.C., Williamson, P.R., Raitt, W.J., Myers, N.B., and Sasaki, S.
The interaction of an artificial electron beam with the Earth's upper atmosphere--Effects on spacecraft charging and the near-plasma environment
J. Geophys. Res., 95, 12209
1990
Spacelab 1

Neubert, T., Harker, K.J., Banks, P.M., Reeves, E.G.D., and Gurnett, D.A.
Waves generated by pulsed electron beams
Adv. Space Res., 10, 7137-7142
1990
Spacelab 2

Reeves, G.D., Banks, P.M., Neubert, T., Harker, K.J., and Gurnett, D.A.
VLF wave emissions by pulsed and DC electron beams in space 2: Analysis of Spacelab 2 results
J. Geophys. Res., 95, 6505-6517
1990
Spacelab 2

Reeves, G.D., Banks, P.M., Neubert, T., Harker, K.J., Gurnett, D.A., and Raitt, W.J.
Spacelab 2 electron beam wave stimulation: Studies of important parameters
J. Geophys. Res., 95, 10655-10670
1990
Spacelab 2

Barrow, C.H., Watermannn, J., Evans, D.S., and Wilhelm, K.
Observations of Antarctic auroral electron precipitation with high stability in time and longitude
Ann. Geophysicae, 9, 259-266
1991
Spacelab 1

Cairns, I.H., and Gurnett, D.A.
Control of plasma waves associated with the Space Shuttle by the angle between the orbiter's velocity vector and magnetic field
J. Geophys. Res., 96, 7591-7601
1991
Spacelab 2

Cairns, I.H., and Gurnett, D.A.
Plasma waves observed in the near vicinity of the Space Shuttle
J Geophys. Res., 96, 13913-13929
1991
Spacelab 2

Mourenas, D., and Beghin, C.
Packets of cyclotron wave induced by electron beam injection from the space shuttle: 1. Linear theory
Radio Sci., 26(2), 469-479
1991
Spacelab 1

Mourenas, D., and Beghin, C.
Packets of cyclotron waves induced by electron beam injection from the space shuttle: 2. Nonlinear theory
Radio Sci., 26(2), 481-491
1991
Spacelab 1

Neubert, T., Sasaki, S., Gilchrist, B., Banks, P.M., Williamson, P.R., Fraser-Smith, A.C., and Raitt, W.J.
Observations of plasma wave turbulence generated around large ionospheric spacecraft: Effects of motionally induced EMF and of electron beam emission
J. Geophys. Res., 96, 9639-9654
1991
OSS-1, Spacelab 1, Spacelab 2

Aguero, V.M., Neubert, T., Raitt, W.J., and Thompson, D.C.
Observations of shuttle vehicle charging in the ionosphere using the TSS-1 SETS experiment
EOS Trans. Am. Geophys. Union, 73(43)
1992
TSS-1

Cirri, G., Bianconi, M., Cordero, F., Bicci, A., Dobrowolny, M., and Bonifazi, C.
Operation of the EGA electron gun at high gas pressure
Il Nuovo Cimento, 15, C
1992
TSS-1

Feng, W., Gurnett, D.A., and Cairns, I.H.
Interference patterns in Spacelab-2 plasma wave data: Oblique electrostatic waves generated by the electron beam
J. Geophys. Res., 97, 17005-17018
1992
Spacelab 2

Gilchrist, B.E., Neubert, T., Aguero, V.M., Bilen, S.G., Williams, S.D., Linscott, I.R., Thompson, D.C., and Raitt, W.J.
Measurements of TSS-1 voltage characteristics using the SETS experiment
EOS Trans. Am. Geophys. Union, 73(43)
1992
TSS-1

Thompson, D.C., Raitt, W.J., Oberhardt, M.R., Hardy, D.A., Aguero, V.M., Linscott, I.R., Neubert, T., and Gilchrist, B.E.
Global survey of TSS-1 current collection as measured by the SETS experiment
EOS Trans. Am. Geophys. Union, 73(43)
1992
TSS-1

Viereck, R.A., Murad, E., Pike, C.P., Mende, S.B., Swenson, G.R., Culbertson, F.L., and Springer, B.C.
Spectral characteristics of shuttle glow
Geophys. Res. Lett., 19, 1219
1992
ATLAS 1

Burch, J.L., Mende, S.B., Kawashima, N., Roberts, W.T., Taylor, W.W.L., Neubert, T., Gibson, W.C., Marshall, J.A., and Swenson, G.R.
Artificial auroras in the upper atmosphere: 1. Electron beam injections
Geophys. Res. Lett., 20, 491-494
1993
ATLAS 1

Feng, W.D., Gurnett, D.A., and Cairns, I.H.
Interference patterns in wideband spectra from the Spacelab-2 plasma wave data: Lower hybrid waves associated with Shuttle thruster firings
J. Geophys. Res., 98, 2211571
1993
Spacelab 2

Marshall, J.A., et al.
CIV experiments on ATLAS-1
Geophys. Res. Lett., 20, 499
1993
ATLAS 1

Mende, S.B., Burch, J.L., Swenson, G.R., Aamodt, E.K., and Geller, S.P.
Artificial auroras in the upper atmosphere: 2. Imaging results
Geophys. Res. Lett., 20, 495-498
1993
ATLAS 1

Mende, S.B., Swenson, G.R., Geller, S.P., Viereck, R.A., Murad, E., and Pike, C.P.
Limb view spectrum of the Earth's airglow
J. Geophys. Res., 98(19), 117-125
1993
ATLAS 1

Mourenas, D., Krasnosel'skikh, V.V., and Beghin, C.
Semi-relativistic maser cyclotron instabilities: Can active experiments help to understand AKR?
Planet. Space Sci., 41(5), 347-355
1993
Spacelab 1

Oberhardt, M.R., Hardy, D.A., Thompson, D.C., Raitt, W.J., Melchioni, E., Bonifazi, C., and Gough, M.P.
Positive spacecraft charging as measured by the Shuttle Potential and Return Electron Experiment
IEEE Trans. Nuc. Sci., 40(6), December
1993
TSS-1

Viereck, R.A., Berstein, L.S., Mende, S.B., Murad, E., Swenson, G.R., and Pike, C.P.
Visible spectra of thruster plumes from the space shuttle primary reaction control system
J. Spacecraft and Rockets, 30, 724-748
1993
ATLAS 1

Bergamaschi, S., and Bonifazi, C.
TSS core equipment: 2 - Dynamic package and rationale for system dynamics analysis
Il Nuovo Cimento, sezione C
1994
TSS-1

Bonifazi, C., Svelto, F., and Sabbagh, J.
TSS core equipment: 1 - Electrodynamic package and rationale for system electrodynamics analysis
Il Nuovo Cimento, sezione C
1994
TSS-1

Burch, J.L., Roberts, W.T., Taylor, W.W.L., Kawashima, N., Marshall, J.A., Moses, S.L., Neubert, T., Mende, S.B., and Choueiri, E.Y.
Space Experiments with Particle Accelerators: SEPAC
Adv. Space Res., 14(9), 263-270
1994
ATLAS 1

Oberhardt, M.R., Hardy, D.A., Slutter, W.E., McGarity, J.O., Sperry, D.J., Everest, A.W., III, Huber, A.C., Pantazis, J.A., and Gough, M.P.
The Shuttle Potential and Return Electron Experiment (SPREE)
Il Nuovo Cimento, 17C(1), Geophysics and Space Physics, January-February
1994
TSS-1

APPENDIX A:
JOURNALS REFERENCED

Acta Astronautica

Acta Otolaryngol.

Acta Physiol. Scand.

Adv. Appl. Mech.

Adv. Biochem. Eng.

Adv. Ceramics

Adv. Colloid Interface Sci.

Adv. Cryog. Eng.

Adv. in Space Biol. and Med.

Adv. Otolaryngol.

Adv. Physiol. Sci.

Adv. Space Res.

Aerosp. Med. Assoc.

AGU Monograph

AIAA J.

AIAA J. Aero. and Astro.

Akad. NAUK SSSR

Alta Frequenza

Aluminium

Alumni Leuven

Am. Assoc. Petrol. Geol. Bull.

Am. Heart J.

Am. J. Anat.

Am. J. Bot.

Am. J. Cardiac Imaging

Am. J. Cardiol.

Am. J. Clin. Nutr.

Am. J. Nephrol.

Am. J. Physiol.

Am. J. Psychol.

Am. Soc. Graviational Space Biol.

Ann. Bot.

Ann. Chim. Fr.

Ann. Geophysicae

Ann. NY Acad. Sci.

Ann. Otol. Rhinol. Laryngol.

Antiquity

Appl. Environ. Microbiol.

Appl. Microgravity Tech.

Appl. Optics

Arch. Otorhinolaryngol.

ASGSB Bulletin

Astro. Lett. and Comm.

Astron. and Astrophys.

Astron. J.

Astrophys. and Space Sci.

Astrophysical J.

Astrophysical J. Lett.

Astrophysical J. Lett. and Comm.

Austral. J. Phys.

Aviat. Space Environ. Med.

Bild der Wissenschaft

Biochem.

Biol. Cell.

Biol. Space Sci.

Biol. Sci. Space

Bioscience

Biotech. & Bioeng.

Blood

Br. J. Pharmacol.

Brain Res.

Bull. Mater. Sci.

Can. Aeron. and Space J.

Cell Tissue Res.

Chest

Chimica Oggi

Ciel et Terre

Circulation

Clin. Invest.

Clin. Physiol.

Comp. Biochem. Physiol.

Comput. Cardiol.

Computers in Biol. Med.

Corriere della Scienze

Crystal Res. and Technol.

Defect and Diffusion Forum

Defense Sci. J.

Dev. Brain Res.

Drugs Exp. Clin. Res.

Earth-Orient. Appl. Space Technol.

Endocrinology

Endocrnol. Japan

Environ. Med.

Environ. Res.

EOS Trans. Am. Geophys. Union

ESA J.

Eur. J. Pharmacol.

Eur. J. Physiol.

Exp. Brain Res.

Exp. Hematology

Exp. Mycology

Experientia

FASEB J.

FEBS Letters

Ferroelectrics

Fluid Phase Equilibria

GAMM-Mitteilungen

Geoarcheology

Geocarta Intl.

Geol. Soc. America Bulletin

Geophys. Res. Lett.

Glastechn. Ber.

Heat and Mass Trans. Mater. Process.

Heat Trans. in High Technol. and Power Eng.

Hydrobiologia

Hypertension

IEEE ElectroTech. Rev.

IEEE Trans. Geosci. Remote Sens.

IEEE Trans. Nuc. Sci.

Il Nuovo Cimento

Immunology Today

Indian J. Phys.

Infrared Solar Physics

Innovation Technol. Biol. Med.

Int. Arch. Photogrammetry and Remote Sensing

Int. J. Heat and Mass Transfer

Int. J. Thermophysics

Int. J. Radiat. Appl. Instrum.

Int. J. Radiat. Biol.

Int. J. Remote Sens.

J. Acoust. Soc. Am.

J. Aero. Soc. Ind.

J. Am. Ceram. Soc.

J. Am. Coll. Cardiol.

J. Am. Soc. Nephrol.

J. Am. Vac. Soc.

J. Appl. Phys.

J. Appl. Physiol.

J. Astrophys. Astron.

J. Atm. Chem.

J. Autonom. Nerv. Syst.

J. Biomechan.

J. Biotechnol.

J. Bone Miner. Res.

J. Br. Interplanetary Soc.

J. Clin. Pharmacol.

J. Colloid and Interface Sci.

J. Crystal Growth

J. Field Arch.

J. Fluid Mech.

J. Geomag. Geoelectr.

J. Geophys. Res.

J. Geophys. Res. Letters

J. Grav. Physiol.

J. Heat Transfer

J. Histochem. Cytochem.

J. Japan. Soc. Microgravity Appl.

J. Leukocyte Biol.

J. Mater. Sci.

J. Mater. Sci. Lett.

J. Med. Syst.

J. Mol. Spectrosc.

J. Neurobiol.

J. Non-Cryst. Solids

J. Nutr.

J. Photochem. Photobiol.

J. Phys.

J. Physics Condens. Matter

J. Physiol. Lond.

J. Quant. Spectrosc. and Rad. Trans.

J. Res. Natl. Inst. Stand. Technol.

J. Spacecr.

J. Spacecraft and Rockets

J. Thermophys. Heat Transfer

J. Trauma

J. Vac. Sci. Technol.

J. Vestibular Res.

Japan J. Physiol.

Japan. J. Appl. Phys.

Kagakukougaku

Kerntechnik

L'Areotecnica Missili e Spazio

Lab. Anim. Sci.

Life Sci. and Space Res.

Low G

Mar. J.

Mater. Sci. Forum

Med. Sci. Sports Exerc.

Medical Instrumentation

Met. Trans.

Metall

Microcomputing

Microgravity Q.

Microgravity Sci. and Technol.

Mikrochim. Acta

Min. Aerosp.

Mon. Not. R. Astr. Soc.

Mon. Weather Rev.

Muscle Nerve

NATO ASI Series

Nature

Naturwissenschaften

Neurochem. Int.

Neuroreport

New Engl. J. Med.

New Scientist

News Physiol. Sci.

Nucl. Inst. and Meth. in Phys. Res.

Nucl. Tracks and Radiat. Meas.

Optical Eng.

Origins of Life

Perception and Psychophysics

Phil. Trans. R. Soc. Lond.

Photogram. Eng. Remote Sensing

Photogrammetrica

Phys. Chem. Glasses

Phys. Blätter

Phys. Fluids

Phys. Rev.

Phys. Rev. Lett.

Phys. Stat. Sol.

Physicalia

Physiol. Plantarum

The Physiologist

Planet. Space Sci.

Plant and Cell Physiol.

Plant Cell and Environ.

Plant Physiol.

Planta

PNAS

Pramana - J. Phys.

Proc. Ind. National Sci. Acad.

Proc. Soc. Exp. Biol. Med.

Prog. Aeronautics Astronautics

QST

Quarterly J. Exp. Psychol.

Radiat. Res.

Radio Sci.

Radiology

Remote Sens. Environ.
Remote Sensing

Respir. Physiol.

Rev. Geophys.

Scan. Electron Microsc.

Science

Science News

Scientific American

Scienza & Tecnica

Seikagaku

Soc. Adv. Mater. and Proc. Eng. J.

Soc. Math. Fr.

Solar Physics

Space Safety and Rescue

Space Sci. Rev.

Space Technol.

Spectrum

Spektrum der Wissenschaft

SPINE

Springer Ser.Chem. Phys.

Technivisie

Tectonics

Therm. Sci. and Eng.

Trans. Tech. Pub.

Trans. Kansas Acad. Sci.

Trends Pharmacol. Sci.

Undersea Biomed. Res.

Vaccine

Yale J. Biol. Med.

Z. Metallkde.

Zeit. Anal. Anwend.

APPENDIX B:
MISSION INFORMATION

Acronym	Payload	Flight	Launch Date
OSTA-1	Office of Space & Terrestrial Applications-1	STS-2	November 12, 1981
OSS-1	Office of Space Science-1	STS-3	March 22, 1982
OSTA-2	Office of Space & Terrestrial Applications-2	STS-7	June 18, 1983
Spacelab 1	Spacelab 1	STS-9	November 28, 1983
OAST-1	Office of Aeronautics & Space Technology-1	41-D	August 30, 1984
OSTA-3	Office of Space & Terrestrial Applications-3	41-G	October 5, 1984
Spacelab 3	Spacelab 3	51-B	April 29, 1985
Spacelab 2	Spacelab 2	51-F	July 29, 1985
D1	First German Spacelab Mission	61-A	October 30, 1985
Astro-1	UV and X-ray Astronomy Mission	STS-38	December 2, 1990
SLS-1	Spacelab Life Sciences-1	STS-40	June 5, 1991
IML-1	First International Microgravity Laboratory	STS-44	January 22, 1992
ATLAS 1	First Atmospheric Laboratory for Applications and Science	STS-45	March 24, 1992
USML-1	First United States Microgravity Laboratory	STS-50	June 25, 1992
TSS-1	First Tethered Satellite System	STS-46	July 31, 1992
Spacelab J	Spacelab Japan	STS-47	September 12, 1992
ATLAS 2	Second Atmospheric Laboratory for Applications and Science	STS-56	April 8, 1993
D2	Second German Spacelab Mission	STS-55	April 26, 1993

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November 1993 represented the 10-year anniversary of the flight of Spacelab 1 mission, with the first precursor mission (OSTA-1) being launched 2 years earlier. Since that time, a total of 27 Shuttle missions has been flown, using the Spacelab system as a facility for conducting scientific research in space. The missions flown to date have allowed a total of approximately 500 Principle Investigator class investigations to be conducted in orbit. These investigations have constituted major scientific efforts in astronomy/astrophysics, atmospheric science, Earth observation, life sciences, microgravity science, and space plasma physics.

An initial survey of the scientific products gleaned from Spacelab missions already flown was sent to the Principle Investigators. In that survey, information was gathered from the investigators on the scientific highlights of their investigations and statistical measurements of overall success--such as papers published. This document is a compilation of the papers that have been published to date in refereed literature.

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