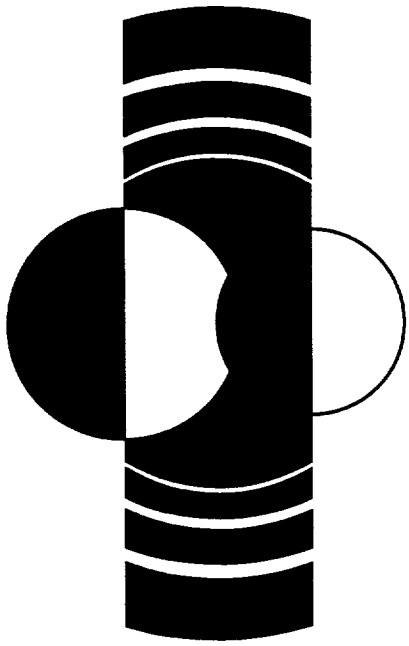

ABSTRACTS

IN SITU RESOURCE UTILIZATION (ISRU II) TECHNICAL INTERCHANGE MEETING

November 18–19, 1997

Lunar and Planetary Institute
Houston, Texas

IN SITU RESOURCE UTILIZATION (ISRU II) TECHNICAL INTERCHANGE MEETING

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Lunar and Planetary Institute
Houston, Texas

Convened by
David Kaplan, NASA Johnson Space Center
R. Stephen Saunders, Jet Propulsion Laboratory

Sponsored by
National Aeronautics and Space Administration
Lunar and Planetary Institute

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PREFACE

This volume contains abstracts that have been accepted for presentation at the In Situ Resource Utilization (ISRU II) Technical Interchange Meeting, November 18–19, 1997, at the Lunar and Planetary Institute, Houston, Texas.

Logistics, administration, and publication support for this meeting were provided by the staff of the Publications and Program Services Department at the Lunar and Planetary Institute.

AGENDA

Tuesday, November 18, 1997

7:30 a.m.	REGISTRATION AND CONTINENTAL BREAKFAST
8:30 a.m.	WELCOME AND INTRODUCTION
9:00 a.m.	Connolly J. F.* *HEDS Strategy for Robotic Mars Mission*
9:30 a.m.	Stancati M. L.* Niehoff J. C. Jacobs M. K. German D. *Mars In Situ Propellant Production (ISPP) Assessment*
10:15 a.m.	BREAK
10:45 a.m.	Zubrin R.* Kito T. Frankie B. *Report on the Construction and Operation of a Mars In Situ Propellant Production Unit Utilizing Reverse Water Gas Shift*
11:15 a.m.	Lawless W. N.* *Oxygen Extraction Using a Ceramic Honeycomb Technology*
11:45 a.m.	Hu H.* Yadav T. *Intermediate-Temperature Electrolysis Cells for Oxygen Production from Carbon Dioxide*
12:15 p.m.	LUNCH and MIST Facility Tour
1:45 p.m.	Wiens R. C. Cremers D. A. Blacic J. D.* Funsten H. O. Nordholt J. E. *Stand-Off Planetary Surface Analysis Using Laser-induced Breakdown Spectroscopy and Laser-induced Plasma Ion Mass Spectrometry*
2:15 p.m.	Agresti D. G.* Wdowiak T. J. Mirov S. B. Kudryavtsev A. B. Kinney T. R. *In Situ Resource Assessment and Process Control with Laser Raman Spectroscopy*
2:45 p.m.	Cooper B. L.* McKay D. S. Allen C. C. Hoffman J. H. Gittleman M. E. *Characterization of the Resource Potential of Martian Soil Using the Integrated Dust/Soil Experiment Package (IDEP)*
3:15 p.m.	BREAK
3:45 p.m.	Mueller P. J.* Rapp D. *Hydrogen Transport to Mars Enables the Sabatier/Electrolysis Process*
4:15 p.m.	Lin F. N.* Bollo T. R. Peterson D. M. *Oxygen Liquefaction and Zero-Loss Storage System*
4:45 p.m.	Fenner J. E.* Edman K. A. *Gas Generation and Cryogenic Refrigeration Technologies*
5:15 p.m.	WRAP-UP
5:30 p.m.	ADJOURN
6:30 p.m.	DINNER AT A LOCAL RESTAURANT

Wednesday, November 19, 1997

8:00 a.m. REGISTRATION AND CONTINENTAL BREAKFAST

8:30 a.m. ANNOUNCEMENTS

8:45 a.m. Jakeš P.*
Microtel: A TV Microscope for Planetary Field Geology and Resource Evaluation

9:15 a.m. Drake D. M.* Clark B. C. Jakosky B. M. Reedy R. Squyres S. W.
A LiF Silicon Sandwich Counter to Measure Water Content of Planetary Surfaces

9:45 a.m. Marshall J.* Koppel L. Bratton C. Metzger E. Hecht M.
In Situ Identification of Mineral Resources with an X-Ray-Optical "Hand-Lens" Instrument

10:15 a.m. BREAK

10:45 a.m. Gorevan S.* Rafeek S. Myrick T. Kong K. Y. Mahaffey P.
Minaturized Material Sampling and Transfer Devices for Extraterrestrial Exploration

11:15 a.m. Finn J. E.* Sridhar K. R.
In Situ Generation of Carrier Gases for Scientific Analyses on Mars

11:45 a.m. LUNCH

1:30 p.m. Wegeng R. S.* TeGrotenhuis W. E. Tonkovich A. L. Y.
In Situ Propellant Production Based on Micro Chemical Systems

2:00 p.m. Vuskovic L.* Ash R. L. Popovic S. Dinh T. Van Orden A.
Oxygen Production and Separation from Martian Atmosphere by the Radio-Frequency Discharge

2:30 p.m. Bruckner A. P.* Coons S. C. Williams J. D.
Feasibility Studies of the Extraction of Water Vapor from the Martian Atmosphere by Adsorption in Zeolite 3A

3:00 p.m. BREAK

3:30 p.m. Johnson S. W.* Chua K. M.
Engineering Properties of the Regolith on the Moon and Mars Related to ISRU

4:00 p.m. Kaplan D. I.*
Mars ISPP Flight Demonstration: A Status Update

4:30 p.m. WRAP-UP

4:45 p.m. ADJOURN

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