Books & Reports

Developments at the Advanced Design Technologies Testbed

A report presents background and historical information, as of August 1998, on the Advanced Design Technologies Testbed (ADTT) at Ames Research Center. The ADTT is characterized as an activity initiated to facilitate improvements in aerospace design processes; provide a proving ground for product-development methods and computational software and hardware; develop "bridging" methods, software, and hardware that can facilitate integrated solutions to design problems; and disseminate lessons learned to the aerospace and information-technology communities.

This work was done by William R. Van Dalsem, Mary E. Livingston, John E. Melton, Francisco J. Torres, and Paul M. Stremel of **Ames Research Center**. *Further information is contained in a TSP (see page 1).*

Inquiries concerning rights for the commercial use of this invention should be addressed to the Patent Counsel, Ames Research Center, (650) 604-5104. Refer to ARC-14303-1.

Spore-Forming Bacteria That Resist Sterilization

A report presents a phenotypic and genotypic characterization of a bacterial species that has been found to be of the genus *Bacillus* and has been tentatively named *B. odysseensis* because it was isolated from surfaces of the Mars Odyssey spacecraft as part of continuing research on techniques for sterilizing spacecraft to prevent contamination of remote planets by terrestrial species. *B. odysseensis* is a Gram-positive, facultatively anaerobic, rod-shaped bacterium that forms round spores. The exosporium has been conjectured to play a role in the elevated resistance to sterilization. Research on the exosporium is proposed as a path toward improved means of sterilization, medical treatment, and prevention of biofouling.

This work was done by Myron La Duc and Kasthuri Venkateswaran of Caltech for **NASA's Jet Propulsion Laboratory**. *Further information is contained in a TSP (see page 1).*

In accordance with Public Law 96-517, the contractor has elected to retain title to this invention. Inquiries concerning rights for its commercial use should be addressed to:

Innovative Technology Assets Management
JPL
Mail Stop 202-233
4800 Oak Grove Drive
Pasadena, CA 91109-8099
(818) 354-2240
E-mail: iaoffice@jpl.nasa.gov

Refer to NPO-40041, volume and number of this NASA Tech Briefs *issue, and the page number.*

Acoustical Applications of the HHT Method

A document discusses applications of a method based on the Huang-Hilbert transform (HHT). The method was described, without the HHT name, in "Analyzing Time Series Using EMD and Hilbert Spectra" (GSC-13817), *NASA Tech Briefs*, Vol. 24, No. 10 (October 2000), page 63. To recapitulate: The method is especially suitable for analyzing time-series data that represent nonstationary and nonlinear physical phenomena. The method involves the empirical mode decomposition (EMD), in which a complicated signal is decomposed into a finite number of functions, called "intrinsic mode functions" (IMFs), that admit well-behaved Hilbert transforms. The HHT consists of the combination of EMD and Hilbert spectral analysis.

This work was done by Norden E. Huang of **Goddard Space Flight Center**. *Further information is contained in a TSP (see page 1).*

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning nonexclusive or exclusive license for its commercial development should be addressed to the Patent Counsel, Goddard Space Flight Center; (301) 286-7351. Refer to GSC-13817-4.