

Biographies of the authors

Haym Benaroya, associate professor of mechanical and aerospace engineering at Rutgers University, New Brunswick, has research interests in nonlinear, stochastic vibrations, wave propagation, liquid sloshing in containers, and lunar structural concepts. He works with graduate students in all these areas except the last one. He is part of the Science-by-Mail program, and enjoys spending time interacting with elementary school science students.

Charles "Pete" Conrad Jr is staff vice president-new business for McDonnell Douglas Space Systems where he is involved in R&D for the Space Exploration Initiative, including the construction of Space Station Freedom, the return to and colonization of the Moon, and the exploration of Mars. Conrad currently is contributing his expertise on SSTO, the single-stage-to-orbit-and return space transportation system called the Delta Clipper.

Koon Meng Chua earned his doctorate in civil engineering at Texas A&M University. His professional interests include soil-structure interaction, rock mechanics, materials, and lunar soil mechanics and construction. His experience includes service as a research engineer at the Texas Transportation Institute and as civil and structural engineer with Brown & Root in the Far East. He is now on the faculty of the University of New Mexico (UNM) as assistant professor in the Department of Civil Engineering. At the UNM he has led investigations of foundation problems and dust mitigation issues associated with telescopes on the Moon. For the Space 92 Conf, he organized and chaired a workshop on the use of simulated lunar soils and he is chair of the education committee for Space 94. He actively supports space grant programs at UNM.

Michael B Duke is deputy for science in the Exploration Programs Office at the NASA Johnson Space Center in Houston, Texas. Long an advocate and strategist for human exploration of the planets, he currently is leading an effort to define a reference approach for the human exploration of Mars.

John A Happel is a structural engineer with JRHarris & Co. He received his MS in structural engineering from the University of Colorado at Boulder. As a researcher at the Center for Space Construction he developed techniques for the design, analysis, and construction of lunar habitats built using indigenous materials. He has a BS in civil engineering from the University of Massachusetts-Amherst, and a BS in environmental chemistry from the University of Wisconsin-Madison. He has many years of experience building a wide range of terrestrial structures from houses to wind turbines, but continues to remain fascinated by the challenges of extraterrestrial construction.

Stewart W Johnson earned his doctorate in civil engineering at the University of Illinois. His dissertation was on structures for a permanent lunar base. During the Apollo program he worked with the geotechnical engineering team investigating the properties of the lunar regolith. As a faculty member at the Air Force Institute of Technology he initiated, with colleagues, investigations of the behavior of soils in various gravity and vacuum environments. He is one of the editors of the proceedings of the Space 88, 90, and 92 Confs on Engineering, Construction, and Operations in Space. He is affiliated with the New Mexico group actively investigating the lunar surface as a site for major astronomical observatories of the 21st Century. This topic was treated in their March 1990 paper in Scientific American. He is Chair of the Space Engineering and Construction Committee of the American Society of Civil Engineers and the Space 94 Steering Committee. He is principal engineer at BDM in Albuquerque.

Max Nein is a systems design engineer in the Advanced Systems Office of the Marshall Space Flight Center. He has been involved for many years in the planning and design of NASA's flight systems, including the Saturn-Apollo vehicles, Skylab Apollo Solar Telescopes, Spacelab, Hubble Space Telescope, and advanced telescope concepts such as the Space InfraRed Telescope Facility, the Coherent Optical System of Multiple Imaging Collectors, the High Earth Orbiting Telescope, and a series of lunar-based astronomical facilities. He is currently investigating concepts for the Lunar Ultraviolet Telescope Experiment, a transit-type instrument to be operational in this decade. Nein earned BS and MS degrees in mechanical engineering from the Technical University of Munich.

Nirajan S Rao is a principal electrical engineer and the leader for Boeing's research on lunar rover power, communications, and navigation systems. Rao earned a doctorate from the University of Virginia in systems engineering and has been with Boeing for eight years.

Al Smith is team leader of the Materials Technologies Team (including space engineering) of the Engineering and Materials Division at the US Army Construction Engineering Research Laboratories in Champaign, Illinois. Responsible for research and technology development of materials used in construction and repair-maintenance of facilities, the team has the lead role in the Army for providing coordination of the Corps of Engineers support to the Space Exploration Initiative. The team has also been assisting NASA in planning for construction and civil engineering related activities for establishing a base facility on the Moon. He received his BS in chemistry from Cumberland College and his MS in engineering from the Theoretical and Applied Mechanics Department at the University of Illinois, Urbana-Champaign.

Lajpat R Utreja is director of the Huntsville Operations of Dynacs Engineering. He has been program manager of a NASA contract on "Multibody Modeling, Verification, and Control" and a multidisciplinary US Army program on "Hollow-Nosed Active Seeker," which led to the invention of a hollow-nosed configuration as a passive means of reducing the nose heat flux of missiles. He has served in a number of senior technical positions associated with hypersonic aerodynamic interactions, hypervelocity impact, computational fluid mechanics, and heat transfer. He is also an adjunct professor at the University of Alabama in Huntsville. He is currently chairman of the Space Environment Subcommittee of the AIAA Space Operations and Support Technical Committee. The charter of the subcommittee is to lead technical awareness in space environment and review papers on specific issues.

Brina E Wallace is a senior mechanical engineer with Boeing in Huntsville, Alabama. A graduate of the University of Alabama College of Engineering, he has led Boeing's research in lunar rover mobility systems for the past five years. He also has been a member of Boeing's Space Station Freedom design and development team.