

Contributors

J. Javier Bautista received a BS in physics in 1971 from St. Mary's University (San Antonio, Texas) and an MS and a PhD in low-temperature physics in 1974 and 1979, respectively, from Michigan State University, (East Lansing, Michigan). At the Jet Propulsion Laboratory (JPL), Pasadena California, he is a principal engineer in the Station Communication Ground Systems. In 1986 he founded the JPL Cryo-Electronics Front-end Equipment Group to enhance and improve JPL's cryogenic, low noise amplifier (LNA) and circuit capabilities. The group's primary responsibility was to develop prototype, high electron mobility transistor (HEMT) based LNAs for the Deep Space Network (DSN), and the DSN's Prototype Large Array of Small Aperture Antennas. He is currently responsible for the design and development of HEMT-based cryogenic, LNAs for 1 to 40 GHz for the DSN. This task includes development of characterization techniques for low noise amplifiers, devices, and components.

Robert C. Clauss received an AA from Pasadena City College (California) after attending military electronics schools while in the United States Marine Corps. He retired in 2006, after 47 years at JPL, where he had worked as a technician, engineer, supervisor, and research program manager. His work with microwave systems and equipment included the development of masers at frequencies from 1 to 40 GHz, design work for spacecraft transponders and transmitters, and mentoring undergraduate students who helped design, build, and track SURFSAT, an Earth-orbiting satellite. He has received 8 patents, 18 NASA monetary awards for technology development, and the NASA Exceptional Service Medal.

Arthur J. Freiley received a BS in electrical and electronic engineering from California Polytechnic University (Pomona, California). He joined JPL in 1970 as a member of the Antenna and Propagations Group working on the research and development of large ground-based reflector antennas technology and calibrations for NASA-JPL Deep Space Network (DSN). Mr. Freiley later assumed the duties and responsibilities of cognizant development engineer for the Antenna Microwave Subsystem for the DSN, developing microwave feed systems (complete with computer control systems). He has also served as the task leader for the Goldstone Solar System Radar (GSSR) megawatt transmitter system development. More recently he has served as the antenna microwave system engineer, developing system requirements, and validating and verifying system performance against those requirements. He has also served as the system engineer for the Goldstone-Apple Valley Radio Telescope (GAVRT) Educational Outreach program.

Macgregor S. Reid received his BSc (1953), BSc Eng (1956), MSc Eng (1962), and PhD (1969) (all in engineering) from the University of the Witwatersrand (Johannesburg, South Africa). Dr. Reid worked at JPL from 1969 until his retirement in 1998. For the last 10 years of his career, he was technical executive assistant to the JPL director. He served a three-year term as Vice President of the American Institute of Aeronautics and Astronautics (AIAA), Washington, District of Columbia. Dr. Reid was Formation Chairman of the International Organization for Standardization (ISO) Subcommittee on Space Systems and Operations for 9 years, and he represented the United States on ISO's Committee on Aircraft and Space Operations for 12 years. He has served on many Advisory Committees, both national and international, and he is the author of more than 80 publications in the technical literature, three of which have won awards. In recognition of his international work, an asteroid was named after Dr. Reid in 1998 (6894 MacReid). He was awarded medals from AIAA and NASA, and six monetary awards from NASA for the invention of new technology.

David Rochblatt is recognized internationally as one of the top experts on large-reflector antennas and metrology. Mr. Rochblatt has been a design engineer, the manager for R&D ground antennas systems, and the antenna calibration expert for the NASA-JPL-DSN for more than 25 years. In 1995 he received the NASA Exceptional Achievement Medal for developing the Microwave Antenna Holography System. Mr. Rochblatt consulted at the Russian Space Agency, the U.S. Naval Research Laboratory (Pomona, Maryland), the University of Naples (Italy), the University of Massachusetts at Amherst, and Cedars Sinai Medical Centre (Los Angeles, California). Also, he has been an invited speaker at a number of IEEE workshops. Mr. Rochblatt holds a BSEE and an MSEE from the University of California at Los Angeles

(UCLA) (received in 1978 and 1980, respectively) and is a senior member of the IEEE. He has published 70 journal and conference papers and received more than a dozen NASA Achievement Awards. His other interests include deep-space telecommunication, inverse scattering problems, and phase retrieval applications for microwaves and optical communications.

Shervin Shambayati received his BS in applied mathematics and engineering from California State University, Northridge, in 1989 and his MSEE, engineer degree and PhD from the University of California, Los Angeles, in 1991, 1993, and 2002, respectively. Dr. Shambayati joined the JPL Deep Space Telecommunications Group in 1993. With that group, Dr. Shambayati participated in the development and testing of the Deep Space Network Galileo Telemetry Receiver (DGT) and the 34-m Arraying Task. In 1997, Dr. Shambayati transferred to the Information Processing Group at JPL where he has been working ever since. With that group he participated in the Mars Global Surveyor Ka-band Link Experiment II (MGS/KaBLE II) and DS1 in-flight Ka-band tests. Most recently, Dr. Shambayati was the principal investigator for the Mars Reconnaissance Orbiter Ka-Band Demonstration. Dr. Shambayati's main research areas include evaluation of weather effects on the end-to-end performance of the deep-space link; end-to-end link design and spacecraft downlink operations over Ka-band links.

James S. Shell received his BSE in engineering physics and his MS degree in physics, in 1975 and 1976 respectively, both from the University of Michigan, Ann Arbor, Michigan. He received his PhD in physics in 1982 from Michigan State University (East Lansing, Michigan). His research focused on the magnetic properties of dilute magnetic alloys at low temperatures. Prior to coming to JPL in 1985, he worked at Henry Ford Hospital (Detroit) in the area of ultrasound imaging, and at Imperial College (London) researching low temperature properties of metals. Since coming to JPL, he has worked primarily on low noise microwave amplifiers (including ruby masers and high electron mobility transistors) and cryogenics for the DSN. He is currently a member of the Spacecraft Transponder Group at JPL.

Dr. Charles Stelzried received a BS in engineering (1957) and an MS in engineering (1959) from the University of California at Los Angeles, California, and his PhD in engineering (1969) from the University of Southern California (Los Angeles, California). He worked at the Jet Propulsion Laboratory, Pasadena, California, from 1953 to his retirement in 2005. Dr. Stelzried helped pioneer DSN low noise receiving systems starting with the first JPL Venus Radar Experiment in 1961 at Goldstone, California. He was a technical group supervisor in the Telecommunications Engineering Division from 1965 to 1981 as well as a radio science team member with the NASA

Mariner 10, Viking, and Helios missions. From 1981 to 1986 he was the DSN manager for the Ulysses, Magellan, Giotto, Venus Balloon, and Vega Pathfinder deep space missions. Dr. Stelzried is a fellow of the IEEE and a member of Tau Beta Pi, AAAS, Sigma Xi, and the International Union of Radio Science (URSI) Commission A. He has authored more than 170 JPL DSN Progress Reports and 5 patent disclosures (including the multicone configuration used in the DSN 70-m antennas), and 60 refereed publications. He has numerous JPL/NASA awards, including the NASA Medal for Exceptional Scientific Achievement.