

APPLICATION OF SPACE TECHNOLOGY TO NDE AJ JI,

Yoseph Bar-Cohen

JPL, California Institute of Technology, Pasadena, CA 91109 yosi@jpl.nasa.gov

ABSTRACT

JPL, an operating division of Caltech, is responsible for the deep space exploration using spacecraft and TeleRobotic technologies. Since all its missions are one of a kind and hardware dependent, the NDE requirements are significantly more stringent than the ones for aerospace conventional needs. Further, the test structures can be complex (in geometry and material construction) and can be beyond the inspection capability of the standard NDE techniques. The multidisciplinary technologies that have been developed at JPL, particularly the ones that were developed for the exploration of Mars, can find applications to a wide variety of NDE applications. A review will be given of the recent of the JPL NDE activity and it will include several short Videos.

BIOGRAPHY

Dr. Yoseph Bar-Cohen is the NDE & Advanced Actuators Principal Investigator at the Jet Propulsion Laboratory. Dr. Bar-Cohen received his Ph.D. in 1979 from the Hebrew University at Jerusalem in Israel. He has more than 25 years experience in NDE, sensors and electroactive materials technologies including his positions at the Israel Aircraft Industry, Air Force Materials Laboratory and McDonnell Douglas Corporation. Dr. Bar-Cohen has been a pioneer in developing new experimental techniques for composite materials including the leaky Lamb waves and the polar backscattering. Currently, he is developing ultrasonic methods of measuring the elastic properties of composites, electroactive polymers for muscle actuators, space-worthy high-torque piezoelectric motors, piezoelectric pumps, ultrasonic techniques for medical applications and he is involved in the NASA efforts to form NASA wide M&P Standards. He is the author of more than 120 publications, made numerous presentations at national and international symposia and holds many patents. Dr. Bar-Cohen is an Adjunct Professor at the Department of the Mechanical and Aerospace Engineering, UCLA, the Editor of the NASA NDE Working Group (NNWG) and the Emeritus Chair of NNWG.