

DR. HENRY HELVAJIAN

SENIOR SCIENTIST, PHYSICAL SCIENCES LABORATORIES



Dr. Henry Helvajian is a senior scientist in the Physical Sciences Laboratories at The Aerospace Corporation. His research includes controlled transformations in materials by laser and ultrasound excitation; diagnostics development for process control in additive manufacturing; a study to send telescopes to 550 AU for exoplanet observation; and HIVE, a space architecture that addresses resiliency. Recently he has served as scientific advisor for projects Sextant and Forward Engineering. Helvajian's work has been supported by the DOE, DARPA, ONR, AFOSR and NASA.

His first research was on gas phase photochemistry of activated radical species and on the photophysical processes of low fluence laser/material interaction. In the early 1990s his research interest expanded into applications of MicroElectroMechanical Systems (MEMS) to space systems, satellite miniaturization and low fluence laser material processing.

He initiated a Gordon Conference on laser interaction with surfaces and initiated application conferences by major U.S. and foreign societies. He was involved in the first 1-kg mass nanosatellite and microthrusters. Helvajian also developed a technique to fabricate MEMS in glass/ceramic materials.

The Aerospace Corporation is an independent, nonprofit organization dedicated to the objective application of science and technology toward the solution of critical issues affecting the nation's space program.

Education

Helvajian earned bachelor's and master's degrees in electrical engineering (EE) from Stanford University, and his Ph.D. in EE/electrophysics at the University of Southern California. He was a National Academy of Sciences postdoctoral scholar at the Naval Research Laboratory.

Affiliations

Helvajian was national co-chair of SPIE's Photonics West LASE Conference for eight years and is the current chair of the SPIE Laser 3D Manufacturing Conference. He has chaired conferences for the MRS, OSA and LIA societies. In helping to start the nanosatellite revolution 25 years ago, he has also chaired conferences sponsored by NASA and CANEUS. Helvajian has edited four books and authored more than 100 papers and book chapters.

Honors and Awards

Helvajian has received certifications of recognition from NASA, ASME, MRS, SPIE, JLPS and European-MRS, and is a SPIE fellow. He holds 20 patents.

The Aerospace Corporation
P.O. Box 92957
Los Angeles, CA 90009-2957
310.336.5000
www.aerospace.org

To schedule an interview, contact
mediaqueries@aero.org
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