

ABSTRACT AND BIOGRAPHY

Juno Project Overview, Challenges for a Jupiter Mission

Juno, the second NASA New Frontiers mission, will launch to Jupiter in August, 2011. The mission features a solar powered, spinning spacecraft in a highly elliptical polar orbit that avoids Jupiter's highest radiation regions. Developing and operating a spacecraft in the environment of space can be a technical and a programmatic challenge and the Juno Mission has the added challenge of operating in the severe radiation environment of Jupiter. This presentation will provide a description of the Juno Mission and the preparations which were required to develop and implement a mission and spacecraft design which can successfully operate in the harsh Jovian environment and provide the desired science returns. The technical challenges and risks of dealing with the Jovian environment and the complexity in the development and implementation of spacecraft and instrument designs will be described to give the audience an understanding of the approach used to develop workable solutions.

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Mr. Kayali is the Mission Assurance Manager for the Juno Project at the NASA Jet Propulsion Laboratory. In this capacity, he is responsible for the assessment of technical risks for the Juno Project and management of the environment definition, radiation control, radiation test and characterization, reliability analysis, hardware and software quality assurance, and electronic parts selection and approval.

Prior to this position, Mr. Kayali held several positions at the Jet Propulsion Laboratory including: Mission Assurance Manager for the Prometheus Project and the Jupiter Icy Moons Orbiter Mission, Manager of the Electronic Parts Engineering Organization, and Manager of the NASA Electronic Parts and Packaging Program.

Mr. Kayali's technical specialty is in the area of compound semiconductor device reliability where he has over 30 publications, and a published book on the subject of GaAs MMIC Reliability. He has served as the chair of the Government Microcircuit Applications & Critical Technology Conference (GOMACTech), the International Reliability Physics Symposium's (IRPS) Compound Semiconductor Session, is a member of the Reliability of Compound Semiconductors Committee, and has participated and chaired a number of various other industry working groups and workshops. He is the recipient of a number of honors and awards including the NASA Exceptional Service Medal. He holds degrees from Texas A&M University and Sam Houston State University in Solid State Physics and Electrical Engineering.