

## INTERNAL ELECTROSTATIC DISCHARGE ENVIRONMENT AT JUPITER

by Dr. Henry B. Garrett

Although a fairly common occurrence in the Earth's environment, internal electrostatic discharge (or IESD) is seldom discussed with regards to extraterrestrial space missions. The Voyager 1 flyby of Jupiter, however, clearly demonstrated the importance of this phenomena in the context of the jovian radiation belts--Voyager suffered 42 Power-On Resets that were ultimately attributed to IESD during passage through the jovian belts. As several missions are being considered for the jovian environment, it is appropriate to revisit the effects observed on Voyager and review what we now know of the jovian IESD environment. In particular, NASA is considering a mission to orbit the moon Europa for the purpose of a close-up look at this possibly oceanic moon to determine if it might harbor life. This presentation will review the previous IESD observations from Voyager 1 in the context of our new understanding of the jovian radiation belts based on Galileo data. The steps taken to test and harden Galileo from IESD will also be briefly reviewed as Galileo does not appear to have suffered any obvious effects from IESD to-date.