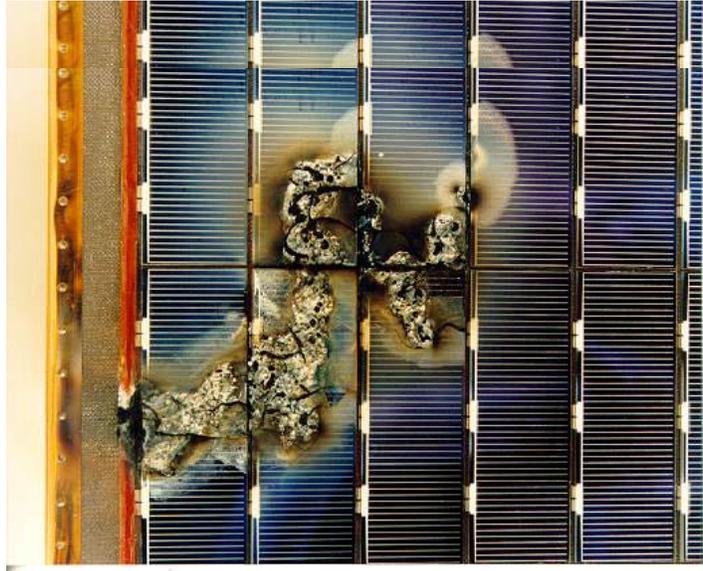




Electronic Properties of Materials with Application to Spacecraft Charging

E10



Objective

This task will establish the electrical properties for a wide array of spacecraft materials and integrate them into relevant databases for use with NASA's existing computer modeling tools as well as next generation models. Extensive use will be made of state-of-the-art space environment simulation, surface analysis, and materials test equipment. The results of this task will improve our understanding of the fundamentals of induced-electron emission from materials and have applications in a diverse range of fields with numerous potentials for technology transfer.

Why Needed

Spacecraft charging (due to secondary, backscattered, and photo-induced electron emission) and deep dielectric charging are known to produce many of the spacecraft system anomalies, component failures, and complete satellite system failures. These failures result from arch discharging reduced structural integrity, and charge-induced contamination.

Point of Contact

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Sponsor

NASA Space Environments and Effects (SEE) Program