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Development of Updated Spacecraft Materials Database for Mitigation of Charging Risk PHILLIP LUNDGREEN, JR DENNISON, Utah State University Materials Physics Group — Spacecraft charging is one of the largest sources of spacecraft anomalies, with over 54% of environment induced anomalies attributed to charging it can also prove to be very costly. The deleterious effects of spacecraft charging are mitigated through two main processes: Risk Informed Decision Making and Continuous Risk Management. There are significant monetary advantages to fixing a problem before it is implemented, for this reason NASA the Air Force and aerospace industries have invested vast resources developing spacecraft charging codes to facilitate the Risk Informed Decision Making process. There is a critical need to understand how the harsh space environment will interact with existing materials and the new materials being developed and incorporated into spacecraft, if scientists and engineers are to select the right material for their designs. Initial efforts by the USU Materials Physics Group established databases with critical material information related to spacecraft charging mitigation This presentation describes the need for an updated spacecraft charging materials database and the efforts to implement this at USU. The database will encompass numerous electron emission and transport measurement results including those from groups of scientists around the world.

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