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Cathodoluminescence Events Coincident with Muon Detection KENNETH ZIA, Undergraduate, JUSTIN DEKANY, Graduate, JR DENNISON, Professor, PHYSICS DEPT. UTAH STATE UNIVERSITY TEAM — Samples of highly disordered insulating material were irradiated with 1 keV electron beams, resulting in three forms of light emission with differing duration: arcs (<1 s duration), flares (~ 100 s), and cathodoluminescence (as long as beam is on). The arc and cathodoluminescence phenomena are well understood, while the flares are not. Flares were observed at intervals of ~ 2 per hr. This is within a factor of 2 for the expected muon cross-section at an altitude of Logan, UT (1370 m) caused by high altitude cosmic rays. Based on this suggestive evidence, we have proposed incorporation of standard muon coincidence detection apparatus into our vacuum cathode luminescence test facility. Measurements of the muon cross-section zenith angle and angle-dependence will provide calibration of the muon detector. If muon evidence coincides with the flare events, this will provide definitive evidence of the flare origin. We will discover whether a correlation between flares of charged sample are caused by transitory muons which trigger discharge and subsequent recharging during our testing of space materials.

> Kenneth Zia None

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