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Electron Induced Luminescence of Insulating Polymeric Materials DOUG BALL, J.R. DENNISON, Utah State University — The study of luminescence and electron transport in disordered insulating materials provides detailed information about the material structure and interaction of incident electrons within a material. Electron induced luminescence of insulating polymeric materials has been observed in tests by the USU Materials Physics group. Conduction electrons can transition between extended states in the valence and conduction band and a distribution of localized trapped states within the band gap. Electron transport and luminescence is governed by the distribution of states and transition rates between them. This study investigates the exponentially decaying signatures of both luminescence and sample current under electron bombardment and relates their origins and relative intensities to proposed theories based on quantum band structure models.

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