E-Field Dependent Conduction Mechanisms in Low Density Polyethylene\textsuperscript{1} JERILYN BRUNSON, J.R. DENNISON, Utah State University — Successful conduction mechanisms have been developed for amorphous solids and semi-conductors for electric field dependent charge carrier mobility. Where electrons are the primary charge carriers, their mobility is dependent on their probability of hopping between potential well trapping sites. Extending these conduction mechanisms to polymers, resistivity can be directly related to carrier mobility within the bulk. A series of low electric field resistivity measurements at constant temperature have been made to test the Poole-Frenkel theory of field-enhanced hopping conduction in low density polyethylene.

\textsuperscript{1}Supported by the Rocky Mountain Space Grant Consortium and NASA SEE Program

Jerilyn Brunson

Date submitted: 30 Nov 2005  
Electronic form version 1.4