

Abstract Submitted  
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**Time Dependent Conductivity of Low Density Polyethylene** PHIL LUNDGREEN, Undergraduate, USU SURFACE PHYSICS GROUP TEAM — The time independent conductivity of Low Density Polyethylene (LDPE) is useful in determining rates of conductivity based on intrinsic properties of a material. A simple, yet elegant, parallel plate capacitor setup allowed for data collection which extended beyond 170 hours. Through precise measurements the different stages of charge distribution were determined to the level of  $300\text{E-}16$  A. Through the use of data analysis programs the dielectric constant and dispersion constant were both determined for LDPE and then compared with a simple, macroscopic, first-principles model to determine the quality of the fit.

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