

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Using COMSOL Multiphysics Software to Analyze the Thin Film Resistance Model of a Conductor on PET** CAROLYN CARRADERO-SANTIAGO, MILZAIDA MERCED-SANABRIA, JOSEE VEDRINE-PAULÉUS, University of Puerto Rico-Humacao — In this research work, we will develop a virtual model to analyze the electrical conductivity of a thin film with three layers, one of graphene or conducting metal film, polyethylene terephthalate (PET) and Poly(3,4-ethylenedioxythiophene) Polystyrene sulfonate (PEDOT:PSS). COMSOL Multiphysics will be the software use to develop the virtual model to analyze the thin-film layers. COMSOL software allows simulation and modelling of physical phenomena represented by differential equations such as that of heat transfer, fluid movement, electromagnetism and structural mechanics. In the work, we will define the geometry of the model; in this case we want three layers-PET, the conducting layer and PEDOT:PSS. We will then add the materials and assign PET as the lower layer, the above conductor as the middle layer and the PEDOT:PSS as the upper layer. We will analyze the model with varying thickness of the top conducting layer. This simulation will allow us to analyze the electrical conductivity, and visualize the model with varying voltage potential, or bias across the plates.

Carolyn Carradero-Santiago  
Retired

Date submitted: 14 Nov 2014

Electronic form version 1.4