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Electrical Characterization of Zn and ZnO Nanowires Grown on PEDOT:PSS Conductive Polymer Thin Films by Physical Vapor Deposition¹ MATTHEW CHAMBERLIN, COSTEL CONSTANTIN, James Madison University — Physical vapor deposition (PVD) techniques offer tremendous possibilities for easy fabrication of nanostructure arrays for use in thin film electronics. In this study we examine inorganic/organic heterojunctions produced by growing conductive Zn and semiconductive ZnO nanowire arrays on organic conductive PE-DOT:PSS polymer thin films using simple and cost-effective PVD methods. Understanding the electrical properties of these hybrid films are of particular interest for applications in organic electronics. However, traditional systems for measuring conductivity and resistivity of thin films by the Van Der Pauw method prove problematic when dealing with soft polymeric surfaces. We present here electrical studies of ZnO- and Zn-nanowire/PEDOT:PSS heterojunctions using a modified 2-point probe method constructed from inexpensive and easily available materials.

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