Abstract Submitted
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The Role of Liquid Crystal Order in Liquid Crystal-Zno Nanoparticle Photovoltaics[1] LUZ J. MARTINEZ-MIRANDA, University of Maryland, KAITLIN M. TRAISTER[2], Franklin and Marshall College, LOURDES SALAMANCA-RIBA, University of Maryland, IRISELIES MELENDEZ-RODRIGUEZ[3], Univerisity of Puerto Rico - Mayaguez — We investigate the role order plays in the transfer of charges in ZnO nanoparticle-8CB Liquid crystal system for photovoltaic applications. It is known that liquid crystals will align the nanoparticles in rows. We have found that in addition the nanoparticle helps align the liquid crystal when mixed in the appropriate percentage mixture in the liquid crystal. In this system, the liquid crystal acts as the hole conductor whereas the nanoparticle or nanowire acts as the electron conductor. We have used InSnO (ITO) electrodes to measure the electrical current. We have changed the percentage weight of ZnO in 8CB from 1.18% to 40%. We have observed that in this system a 30% weight of ZnO in the liquid crystal octylcyanobiphenyl (8CB) will 1. Help to further align the liquid crystal; 2. Produce the largest change in V_{oc} with respect to the V_{oc} of the nanoparticle; 3. Increase the current generated.

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