

Abstract Submitted  
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**Growth and electrical properties of vertically oriented organic single-crystalline nanostructures**<sup>1</sup> SAN THEINGI, Mount Holyoke College, TIM MIRABITO, ALEJANDRO BRISENO, University of Massachusetts (Amherst,MA), KATHERINE AIDALA, Mount Holyoke College — We present our growth of vertically oriented organic single crystalline nanowires of copper tetra-tertbutylphthalocyanine (t-butyl-CuPc) on highly ordered pyrolytic graphite (HOPG). The nanowires are grown by using physical vapor transport (PVT) method, with directed crystallization on ordered substrates. Single crystal nanostructures are free of grain boundaries and this promotes charge transport through the material. The pi-pi interactions between adjacent molecules of the single crystal provide a direct path for charge transfer, leading to high carrier mobility. Vertically oriented single-crystal nanostructures have applications as high surface area solar cells. We are studying the electrical conductivity of these nanostructures using conductive atomic force microscopy (CAFM). The AFM tip makes an electrical contact to an individual wire, and current is measured as a function of applied voltage.

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