

Abstract Submitted
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Controlled Growth of Copper Oxide Nano-Wires through Direct Oxidation¹ JOANN HILMAN, RAVI NEUPANE, ANDREW J. YOST, TEYU CHIEN, Univ of Wyoming — Copper oxides, both Cu_2O and CuO , have many applications in solar cells, sensors, and nano-electronics. The properties of the copper oxides are further influenced by the dimension of the materials, especially when made in nanoscale. In particular, the properties of the copper oxide nanowires could be tuned by their structures, lengths, and widths. While several methods have been reported to grow nanowires, direct oxidation is arguably the most economical one. This research examines the effects of oxidization duration and temperature in dry air environment on the development of copper oxide nanowires in order to achieve cost effective controllable growth. Using the direct oxidation method in dry air we have demonstrated growth of CuO nano-wires at temperatures as low as 300 C and as short as 1hr. Furthermore we have observed that the lengths and diameters of the CuO NWs can be controlled by the duration and temperature of the oxidation process.

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