

Abstract Submitted  
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**Modification of the growth mechanism of ZnO nanowires by addition of oxidizing agents**<sup>1</sup> ERIC DRISCOLL, BRADLEY GOLDBERGER, MARIAN TZOLOV, Lock Haven University of PA — Zinc oxide nanowires were grown catalytically on silicon (100) and (111) surfaces by means of chemical vapor deposition. A very thin layer of sputter deposited gold was used as the catalyst. Nanowires of different compositions were obtained by varying the ratio of carbon to zinc oxide in the source material and the flow rates of oxidizing gases. Results showed that the additional oxidizing gas changed the composition as well as the growth mode of the nanowires. The existence of several growth steps was observed. These steps were induced by the continuous presence of the source material during the system's heating and cooling processes. Remnants of gold found on the tips of the nanowires provided evidence for catalytic growth. The composition was analyzed by energy dispersive x-ray spectroscopy. Imaging by scanning electron microscopy showed random growth directions of nanowires, formation of sheets, and some instances of transitions from sheet to wire growth. The formation of defects was studied by photoluminescence spectroscopy.

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