

Abstract Submitted
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Synthesis of Silicon Oxide Nanowires by Chemical Vapor Deposition SHANNON BERRIER, Clarion Univ of Pennsylvania — Silicon oxide nanowires have shown promise in fields such as fiber optic communications and light emitting sources, but have undergone limited study. The performed experiments utilize a vacuum tube furnace to fabricate the wires through chemical vapor deposition. In the presence of reduced pressure and a temperature gradient, vaporized raw materials were expected to condensate onto silicon wafer substrates, located near the far end of the tube, in the form of nanowires. When observed by naked eye and by electron microscopy, no deposition occurred in the absence of carbon as a component in the raw material, thus verifying the significance of carbon in the proposed reaction material. In a further experiment, the removal of zinc oxide from the source material was expected to have no effect on the formation of silicon oxide nanowires. However, the results were significantly different from previously reported experiments, suggesting that zinc oxide is necessary in nanowire synthesis. A final experiment attempted to replicate a previous synthesis method of silicon oxide nanowires, but it yielded unexpected results.

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