

Abstract Submitted
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In-Situ Growth of Carbon Nanotubes in a Microreactor Environment SILPA KONA, CINDY HARNETT, University of Louisville — This work presents an approach to the in-situ growth of Carbon Nanotubes (CNTs) inside a micro scale environment using thermal chemical vapor deposition technique (Thermal CVD). Microreactors provide an ideal environment for exploration of extreme nanomaterial growth conditions, because they provide homogenous reactant temperature and concentrations, and the ability to work safely and economically at high temperatures and pressures over a broad range of flows. The study of Carbon Nanotube synthesis inside sub-mm channels and microfabricated reactors is of interest both fundamentally and for applications such as chromatographic channels. Carbon nanotubes (CNTs) are also excellent materials to be used as gas sensing elements as they exhibit changes in their electronic properties on being exposed to gases and are of interest in developing gas sensors operating at room temperature. Such micro scale CNT based sensing devices offer several practical advantages over the current sensors designs available, along with opening up avenues for a more efficient and better way of sensing gases.

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