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Synthesis of Hollow Carbon Nanofibers and Filled Carbon Nanotubes using Chemical Vapor Deposition Technique. KEVIN SHAY, EVGENIYA MOISEEVA, GAMINI SUMANASEKERA¹, Department of Physics, University of Louisville — Hollow carbon nanofibers (CNFs) and filled carbon nanotubes were created using chemical vapor deposition (CVD). Hollow carbon nanofibers were synthesized in porous anodic aluminum oxide templates (AAO) by CVD of methane (CH_4) with ferrocene ($\text{C}_{10}\text{H}_{10}\text{Fe}$), indium tin oxide (ITO) and iron nitride ($\text{Fe}(\text{NO}_3)_3$) as catalyst at 910°C . Carbon nanotubes were filled with iron using CVD of methane. The source of iron in this process was ferrocene. Both the nanostructures were viewed under SEM and TEM. The CNFs grown within the pores of the aluminum oxide membranes are uniform with lengths of about 50 μm and outer diameters of about 200 nm. A diameter of 20-30 nm was measured for the iron filled sample. The magnetic transport properties of the samples will be presented.

¹Primary Reference

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