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Synthesis and Electrical Transport Properties of Carbon Nanocoils EL HADI SADKI, SHUICHI OOI, HIROYUKI TAKEYA, KAZUTO HIRATA, National Institute for Materials Science, Tsukuba 305-0047, JAPAN — Since the discovery of carbon nanotubes at the beginning of the last decade, a tremendous progress has been achieved in improving their synthesis techniques, understanding their physical properties, and even their implementation into performing nanodevices. However, another member of the carbon nanostructures family, namely carbon nanocoils (CNC), have surprisingly received little attention, despite their interesting physics and potential applications in nanoelectronics and nanoelectromechanical systems (NEMS). Here we report on the synthesis of CNC by chemical vapor deposition (CVD) of carbohydrate gases on specially prepared substrates. In order to explore their electrical transport properties, metallic electrodes have been deposited on selected CNCs by a combination of electron beam lithography and metal lift-off techniques. Attempts to measure their electrical resistivity as a function of temperature and magnetic field will also be presented

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