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Electrochemical Double Layer Capacitors Using Few Layers of Graphene Grown on Nickel Foil. R. SHAH, U. PHILIPOSE, J.M. PEREZ, Department of Physics, University of North Texas, Denton, TX, 76203, S. TALAP-ATRA, Department of Physics, Southern Illinois University Carbondale, IL, 62901 — We report on the properties of Electrochemical Double Layer Capacitors (EDLCs) fabricated using few layers of graphene synthesized on Nickel (Ni) foil by Chemical Vapor Deposition (CVD). The graphene films were characterized by Raman spectroscopy and showed that the film comprised more than one layers of graphene. The capacitive behavior of the fabricated EDLCs was examined using cyclic voltammetry, constant current charge/discharge, and impedance spectroscopy. These measurements show that the charge storage phenomenon is non-Faradic in nature. The capacitance of graphene on Ni electrodes was then compared to blank Ni foil electrodes and it was found that the capacitance of graphene on Ni foil is substantially higher than the blank Ni foil electrode. These results show that the few layers of graphene film grown on Ni foil could be promising material to function as electrodes for electrochemical energy storage device applications.

Rakesh Shah
Department of Physics, University of North Texas, Denton, TX, 76203

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