

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Cobalt Phosphide Nanowire Arrays for Flexible Solid-State Asymmetric Supercapacitors¹ ZHI ZHENG, MICHAEL RETANA, RAMONA LUNA, WEILIE ZHOU, Advanced Materials Research Institute, University of New Orleans — Supercapacitors, owing to its fast charge-discharge rate, high power density, excellent stability and long cycle life, have received tremendous interest as promising electrochemical energy storage devices for a large variety of applications. In this study, Cobalt phosphide nanowire arrays on carbon cloth were synthesized by a simple two-step hydrothermal method. Owing to the unique nanostructures, it exhibits good performance such as high capacitance and high rate capability when utilized as supercapacitor electrodes. Moreover, the solid-state flexible asymmetric supercapacitor based on cobalt phosphide electrode demonstrates excellent performance such as high energy density and power density. In addition, the solid-state supercapacitor devices show remarkable cycle stability. This work demonstrates an example of cobalt phosphide for supercapacitor electrode application as well as a promising candidate for next-generation energy storage material.

¹Louisiana Board of Regents under contract No. LEQSF(2011-13)-RD-B-08; National Science Foundation (DMR-1262904)

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Date submitted: 11 Nov 2016

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