Supporting Information

**Ultrahigh Energy Density Supercapacitors Using Nickel Phosphide/Nickel/Titanium Carbide Nanocomposite Capacitor Electrodes**

Jing Xu,\textsuperscript{a} Nianjun Yang,\textsuperscript{a,*} Siyu Yu,\textsuperscript{a,b} Anna Schulte,\textsuperscript{c} Holger Schönherr,\textsuperscript{c} Xin Jiang\textsuperscript{a,*}

\textsuperscript{a} Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany

\textsuperscript{b} School of Chemistry and Chemical Engineering, Southwest University, Chongqing 400715, China

\textsuperscript{c} Physical Chemistry I & Research Center of Micro and Nanochemistry and Engineering (C\mu), Department of Chemistry and Biology, University of Siegen, 57076 Siegen, Germany

E-mail: nianjun.yang@uni-siegen.de, xin.jiang@uni-siegen.de
Supporting Figures

**Figure S1.** SEM images of a Ni$_5$TiO$_7$/TiO$_2$(P) composite film in a (a) side and (b) top view.

**Figure S2.** EDX line profile (a) and related SEM image (b) of a titanium substrate after a PEO process.
Figure S3. XPS survey spectrum of a Ni$_{12}$P$_5$/Ni/TiC composite film.
Figure S4. Photograph of a supercapacitor demonstrator operated by a single PC device.