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High energy density performance of hydrothermally produced hydrous Ruthenium oxide/ multiwalled carbon nanotubes composite: Design of an asymmetric supercapacitor with excellent cycle life

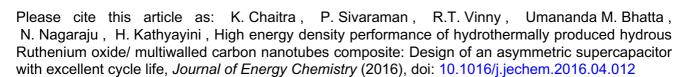
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## ACCEPTED MANUSCRIPT

High energy density performance of hydrothermally produced hydrous Ruthenium oxide/
multiwalled carbon nanotubes composite: Design of an asymmetric supercapacitor with excellent
cycle life

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#### **Abstract**

Hydrous Ruthenium oxide (h-RuO<sub>2</sub>) nanoparticles and its composite with multiwalled carbon nanotubes (h-RuO<sub>2</sub>/MWCNT) were synthesized by a simple hydrothermal method and proved to have potential application as hybrid supercapacitor material. The h-RuO<sub>2</sub> and h-RuO<sub>2</sub>/MWCNT were characterized for their physicochemical properties by PXRD, BET surface area, Raman, SEM-EDS and TEM techniques. The electrochemical performance of the materials were investigated, specific capacitance (*Cs*) of h-RuO<sub>2</sub> and h-RuO<sub>2</sub>/MWCNT estimated by their cyclic voltammetric studies were found to be 604 and 1585 F/g respectively

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