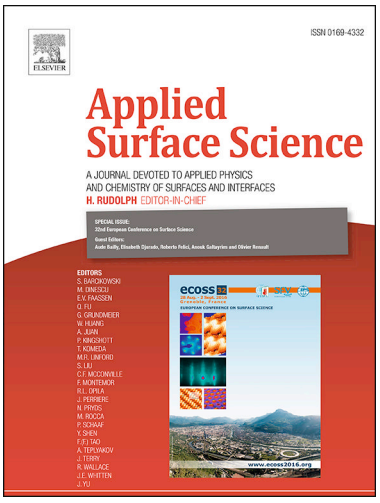

Full Length Article

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Controllable one-pot synthesis of emerging β-Cu_2Se nanowire freely standing on nickel foam for high electrochemical energy storage performance

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Graphical abstrsct

The super-ionic conductivity nanowire Cu_2Se/Ni-foam electrode processes excellent cycling performance and the electrode is firstly assembled to asymmetric supercapacitor achieving high energy and power density.

Abstract

Transition metal selenide has stimulated much research interest in in energy storage and conversion, due to its excellent electrical conductivity. β-Cu_2Se with special crystal structure is considered as super-ionic conductor, of which the diffusion coefficient is as large as a liquid. The fast ions and electrons conductor β-Cu_2Se with uniformly dense nanowire crossing with each other directly on nickel foam is prepared via simple one-step solvothermal grow method for 4h, avoiding conductive agent and binder. The feature much benefitting for electrons and ions transfer enable the β-Cu_2Se-4h electrode