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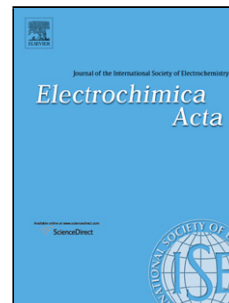
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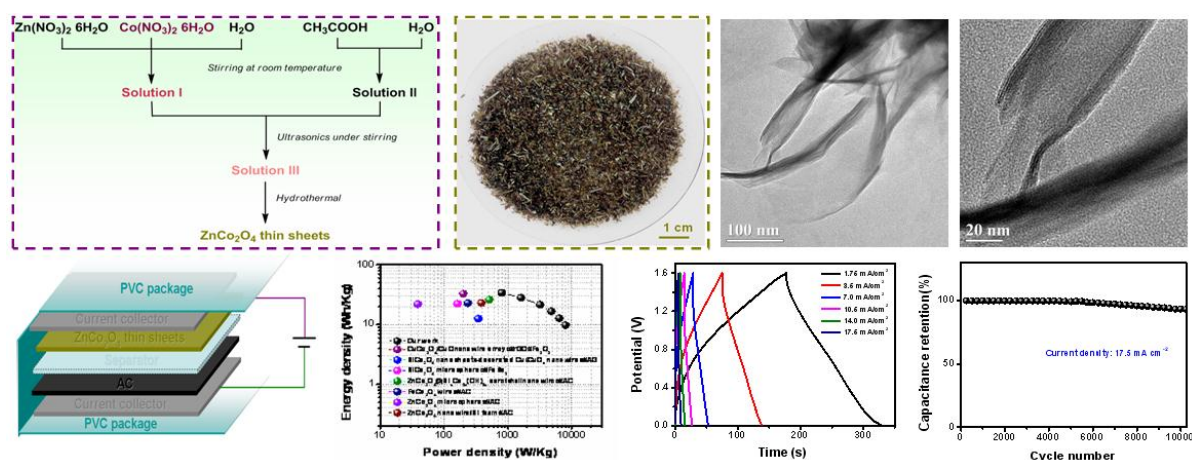


Free-standing Two-dimensional Mesoporous ZnCo_2O_4 Thin Sheets Consisting of 3D Ultrathin Nanoflake Array Frameworks for High Performance Asymmetric Supercapacitor

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Graphical Abstract



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Abstract:

For developing high performance supercapacitors (SCs), it is critical to fabricate advanced electrode materials with porous nanostructures and high surface area to facilitate the transport of ions and electrons and impede the volumetric variation during cycling. Herein, we reported the fabrication of free-standing two dimensional (2D) mesoporous ZnCo_2O_4 thin sheets (CQU-Chen-Zn-Co-O-1) consisting of 3D ultrathin nanoflake array frameworks by facile decomposition of a mixed aqueous solution of zinc ion (Zn^{2+}), cobalt ion (Co^{2+}) and acetic acid (CH_3COOH , AA) under hydrothermal condition *without any additive agent*. The resulting CQU-Chen-Zn-Co-O-1 delivers a high capacitance of $2.72 \text{ F}\cdot\text{cm}^{-2}$ ($2690.86 \text{ F}\cdot\text{g}^{-1}$) at $2.02 \text{ mA}\cdot\text{cm}^{-2}$ and high rate capability of 59.76 % from 1.01 to $10.1 \text{ mA}\cdot\text{cm}^{-2}$ and superior cycling performance of 3.5 % loss after 5,000 cycles.

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