Short Communication

Preparation of Porous Carbon-Manganese Dioxide Nanocomposite as a Supercapacitor Electrode

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Activated porous carbons were prepared from paulownia flower by carbonization and subsequent alkali activation. Then MnO₂-AC₃ composite was synthesized by the electrochemical deposition of manganese oxide nanostructures on the surface of as-prepared activated porous carbons. The MnO₂-AC₃ electrode demonstrates outstanding capacitive behavior with low charge transfer resistance owing to the double layer charge storage and unique pore structure (coexistence of micropores, mesopores and macropores) of activated porous carbons. The stability of MnO₂-AC₃ electrode was affirmed by 1000 successive charge/discharge cycles. The remarkable capacitive behavior and excellent stability make MnO₂-AC₃ promising material with potential application in supercapacitor.

Keywords: Supercapacitor; Activated porous carbon; Manganese oxide; Electrodeposition; Cycle life

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