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Facile synthesis of mesoporous NiCo(OH)₂/CNT composite for high performance energy storage application

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Mesoporous NiCo(OH)₂/CNT composite was synthesized by a facile solvothermal technique using ethylene glycol as structure directing agent to improve the textural parameters. The electrochemical performance of the composite material was studied in two different current collectors: Chemical vapor deposition grown graphene on nickel foam and nickel foam. The former exhibits the best performance with a specific capacity of 734 mAh/g at 1 A/g compared to 416 mAh/g for NF alone. The specific capacity still remains as high as 605 mAh/g at high current density of 10 A/g. This represents only ~17% of capacity loss for an order of magnitude increase in the current density. This electrode material on graphene –nickel foam also shows an excellent stability with a columbic efficiency of 99 % after 1000 cycles.

Apply to be considered for a student award (Yes / No)?

yes

Level for award (Hons, MSc, PhD, N/A)?

PhD

Main supervisor (name and email) and his / her institution

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yes

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No

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