

The synthesis, characterization and electrochemical performance of hollow sandwich microtubules composed of ultrathin Co_3O_4 nanosheets and porous carbon by bio-template

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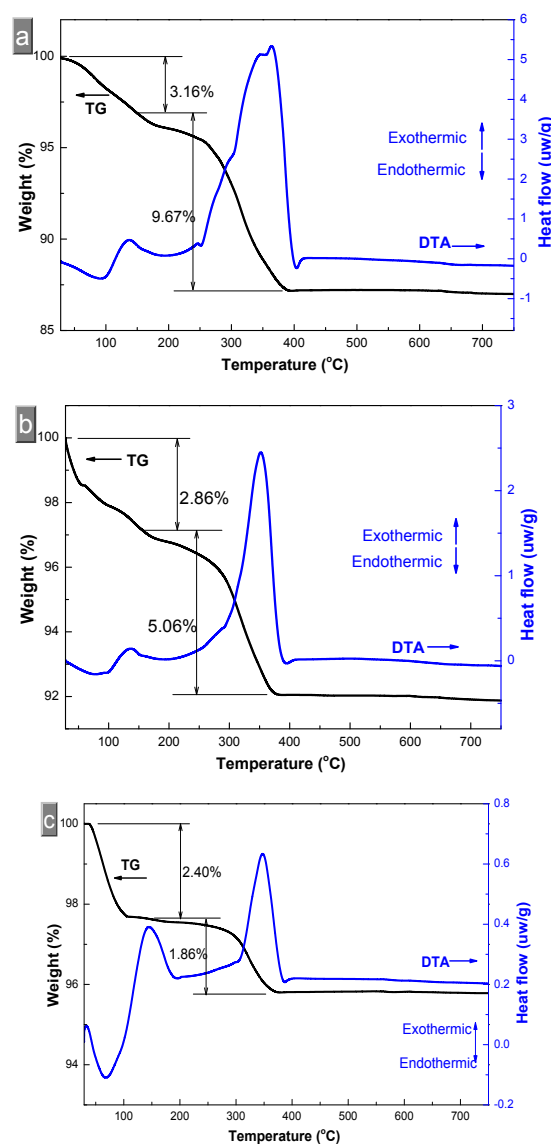


Fig. S1 TG-DSC curves of CNM-1 (a), CNM-2 (b) and CNM-3 (c).

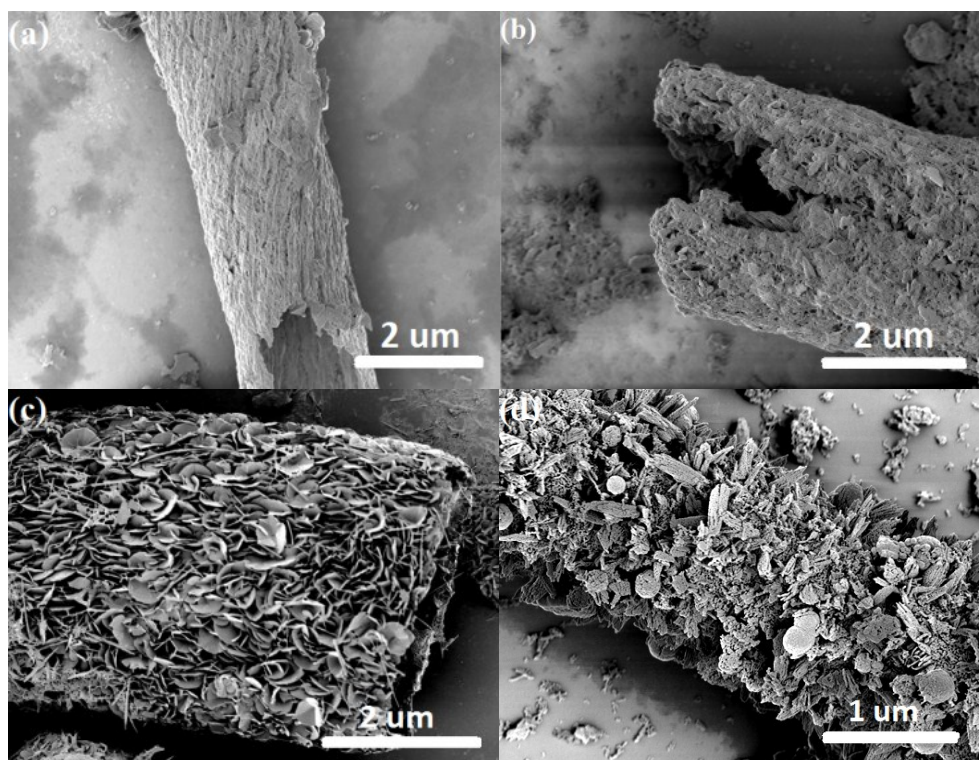


Fig. S2 The growth evolution of Co_3O_4 nanosheets prepared from the solvothermal system at 180°C in the presence of the ramie biotemplate for 1 (a), 3 (b), 5 (c) and 7 h (d), respectively.

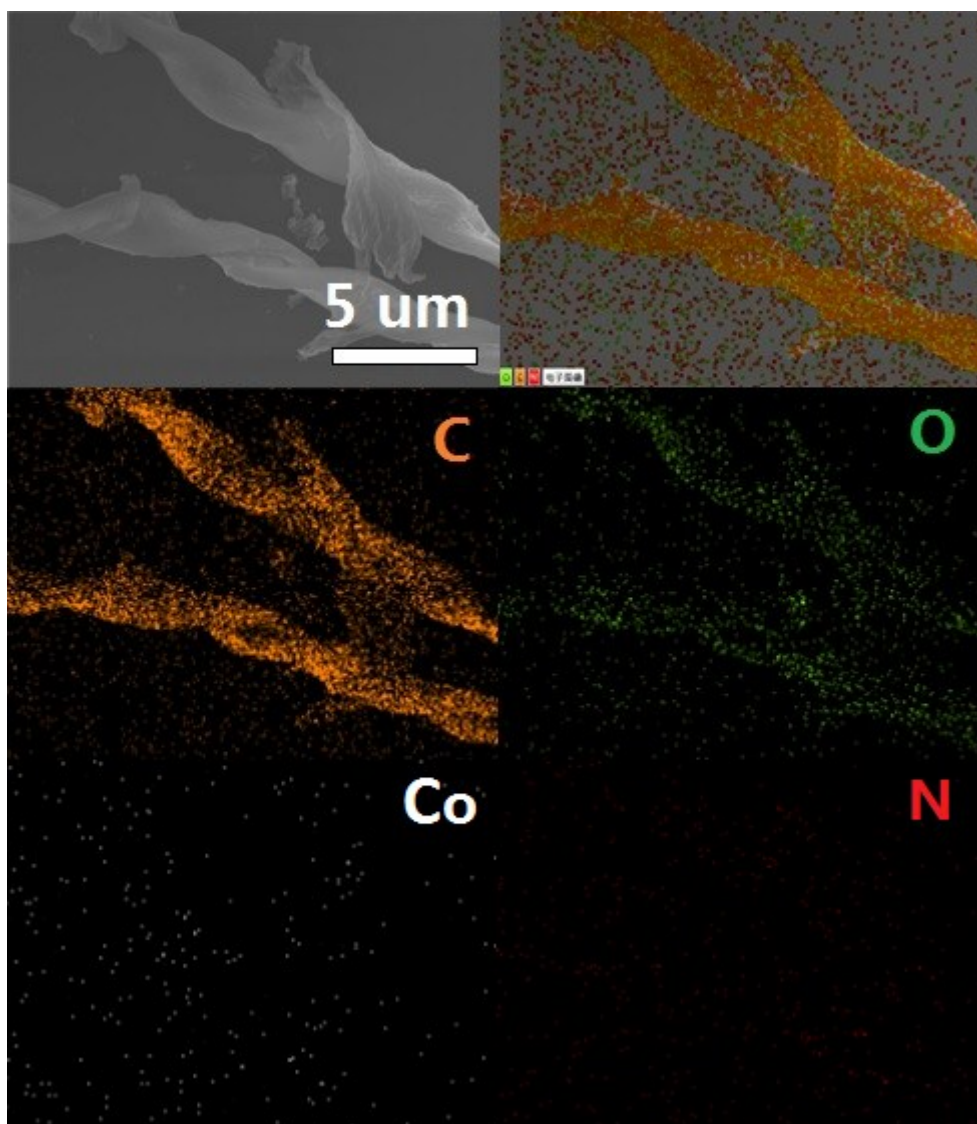


Fig. S3 The element mapping of C, O, Co and N in ramie after solvothermal reaction.

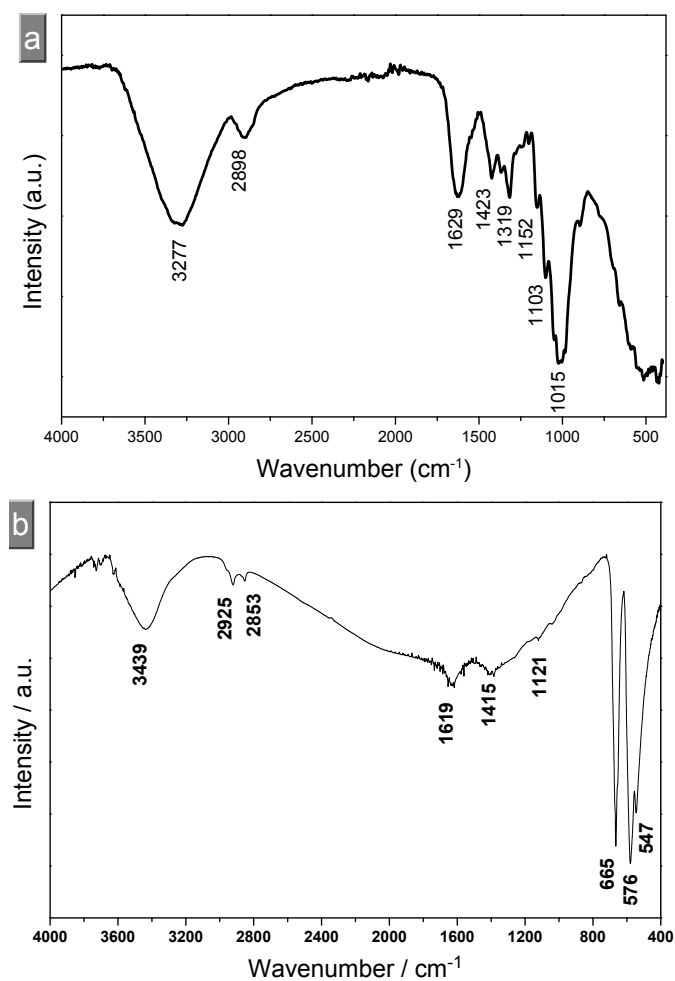


Fig. S4 FTIR of pre-carbonized ramie (a): 3277, 2898, 1629, 1423, 1319, 1152, 1103, 1015 cm⁻¹ are ascribed to the functional group of O–H, C–H, C=C, –C=O, C–O–C, C–OH bonds. are the in-plane bending vibration of them;
FTIR of CNM-1(b): 547, 576 and 665 cm⁻¹ can be ascribed to Metal–O bonds [19]. 1415 and 1121 are ascribed to –C=O and C–O–C, and other peaks can be attributed as ramie.

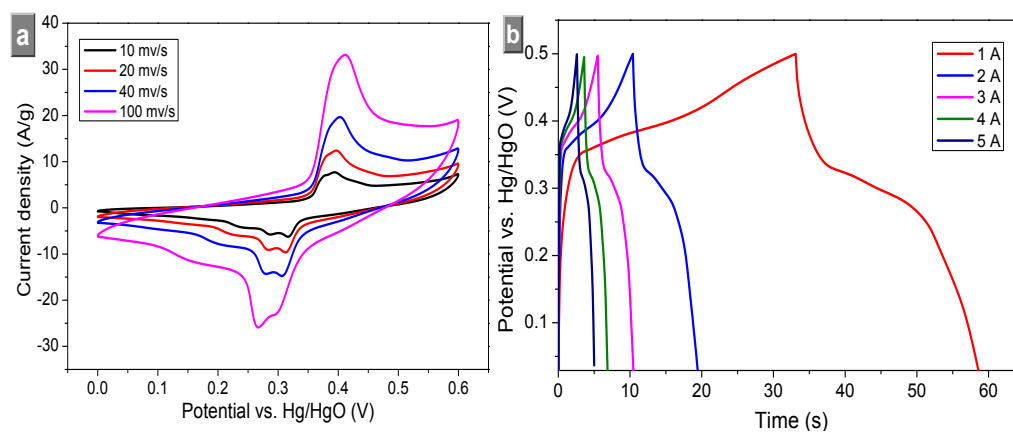


Fig. S5 CV curves at various scan rates (a) and galvanostatic charge-discharge curves at various current densities of ramie (b)