Electronic Supplementary Material

Bio-inspired Synthesis of NaCl-type $Co_xNi_{(1-x)}O$ ($0 \leq x < 1$) Nanorods on Reduced Graphene Oxide Sheets and Screening for Asymmetric Electrochemical Capacitors

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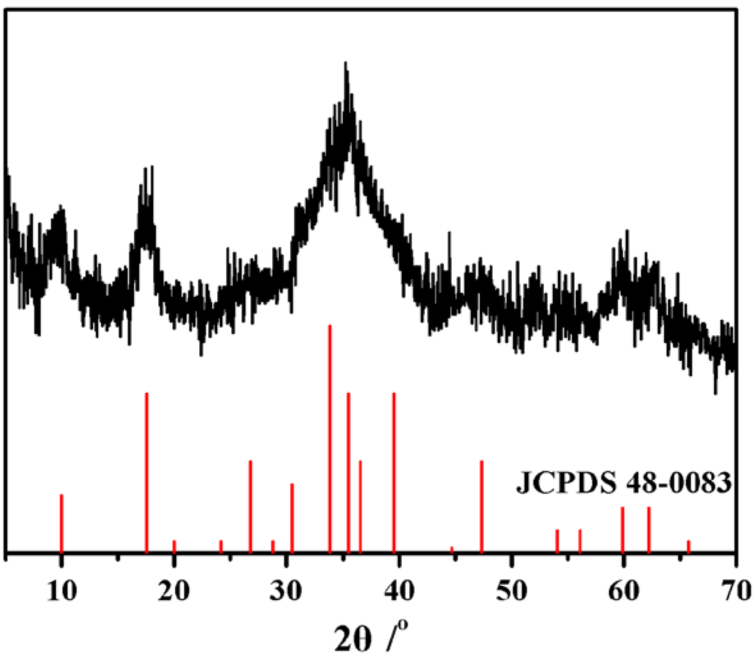

Figure SI-1. XRD patterns of the nanocomposites formed from the supersaturation Co-Ni bicarbonate solution after the slow escape of CO_2 (Step I) and the following hydrothermal processes (Step II), which is in consistent with the standard pattern of $Co(CO_3)_{0.5}(OH)\cdot 0.11H_2O$ (JCPDS 48-0083).

Electronic Supplementary Material (ESI) for Journal of Materials Chemistry

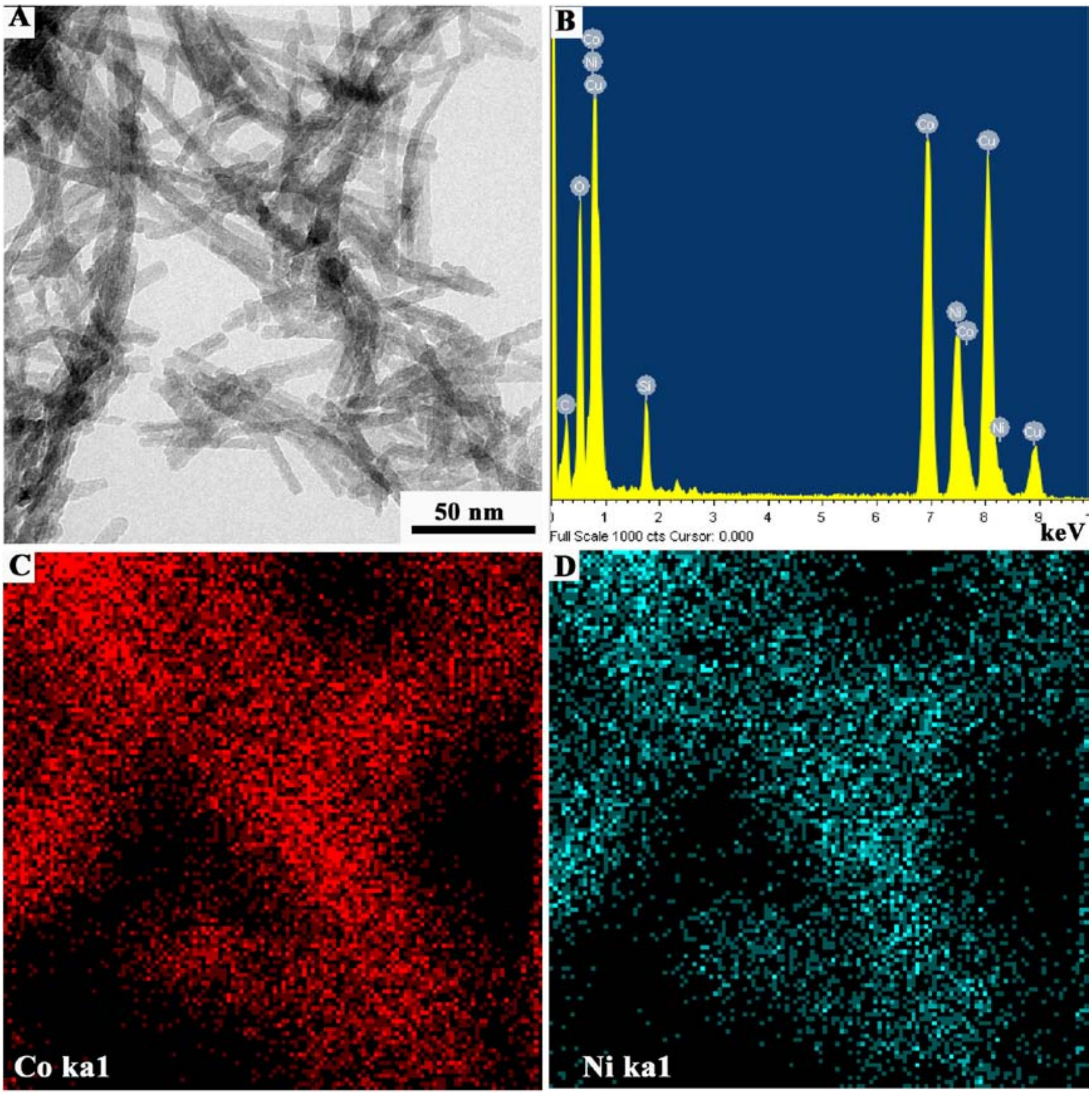

Figure SI-2. (A) TEM image, (B) EDX spectrum, (C) Co and (D) Ni mappings of $Co_xNi_{1-x}(CO_3)_{0.5}(OH)$ nanorods, which are grown on graphene surface. Together with TEM image (A) and EDX spectrum (B), the Co and Ni mappings in C and D reveal that Co and Ni elements are uniformly distributed in the nanorods.

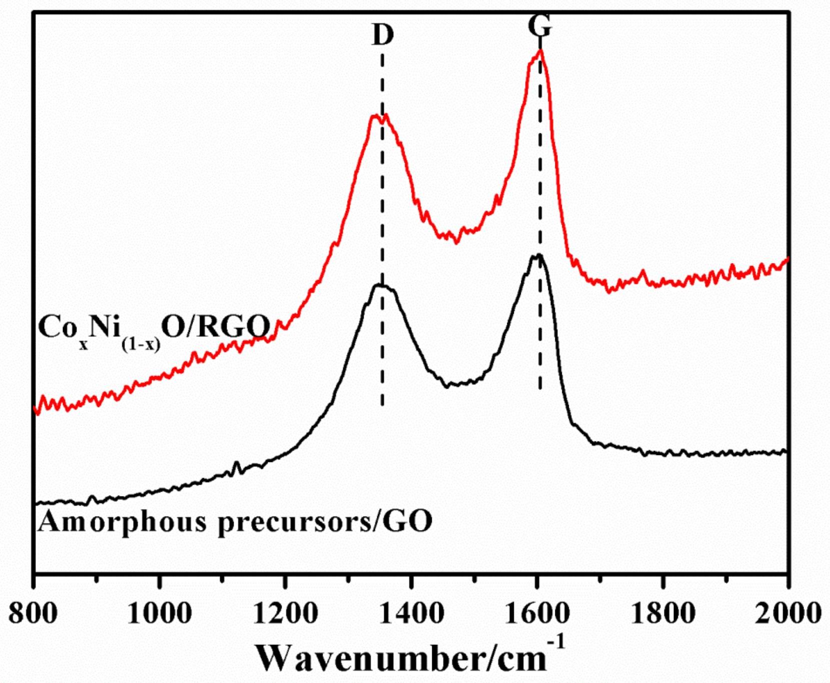

Figure SI-3. Raman spectra of amorphous precursors/graphene oxide (GO) and $Co_xNi_{1-x}O$/reduced graphene oxide (RGO) nanocomposites.

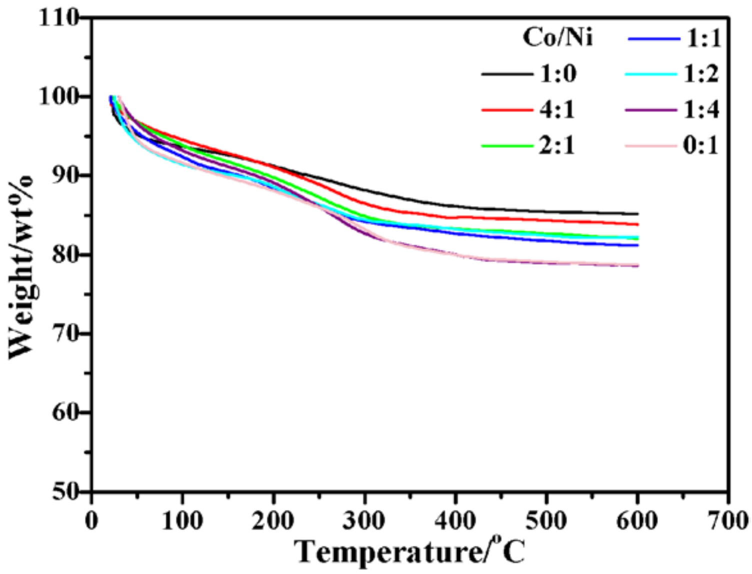

Figure SI-4. TGA curves of $Co_xNi_{(1-x)}O$/RGO nanocomposites from 30 to 600 ^oC under air atmosphere. Notice that before the TGA test, the samples had been thermally treated at 300 ^oC under N_2 atomsphere to form the $Co_xNi_{1-x}O$/RGO composites. Thus, the first weight loss was due to the escape of free water, and the second weight loss at > 200 ^oC should be ascribed to the decomposition and combustion of RGO.

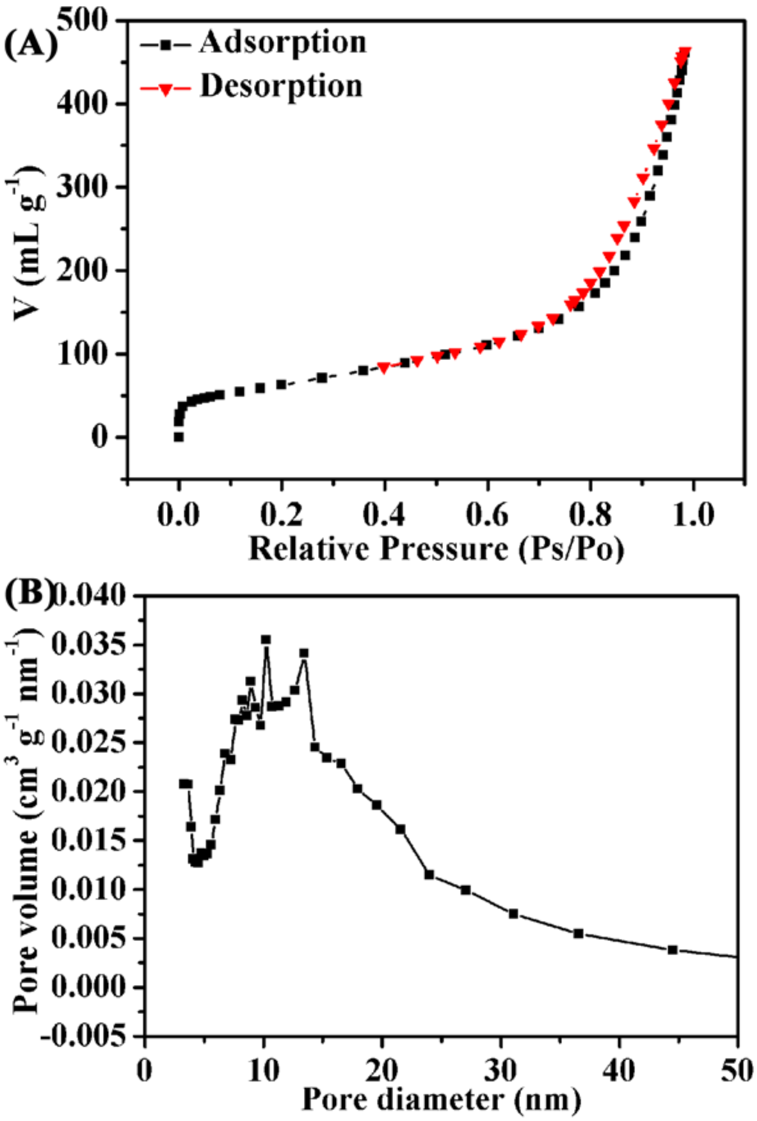

Figure SI-5. (A) Nitrogen adsorption and desorption isotherms of $Co_{0.45}Ni_{0.55}O$/RGO nanocomposites measured at standard temperature and pressure, and (B) the corresponding BJH pore size distribution plots.

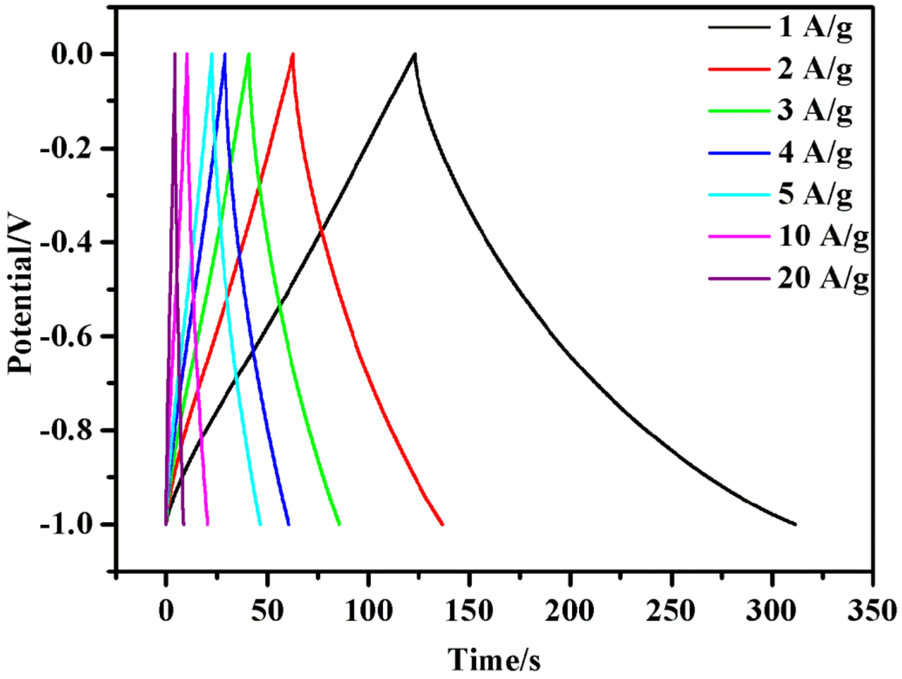

Figure SI-6. The galvanostatic charge-discharge curves of reduced graphene oxide (RGO) in 1.0 M KOH electrolyte at various current densities. The specific capacitance are 188.4, 147.9, 134.3, 125.9, 119.6, 99.8, and 83.2 F/g at the current density of 1, 2, 3, 4, 5, 10, and 20 A/g, respectively, calculated according to the equation $C=(I\Delta t)/(m\Delta V)$ (I/m: the current density; Δt: the time of the discharge segment; ΔV: represents the voltage change after a full charge or discharge)