Journal Name

ARTICLE

Supporting information

A single-step room-temperature electrochemical synthesis of nitrogen-doped graphene nanoribbons from carbon nanotubes

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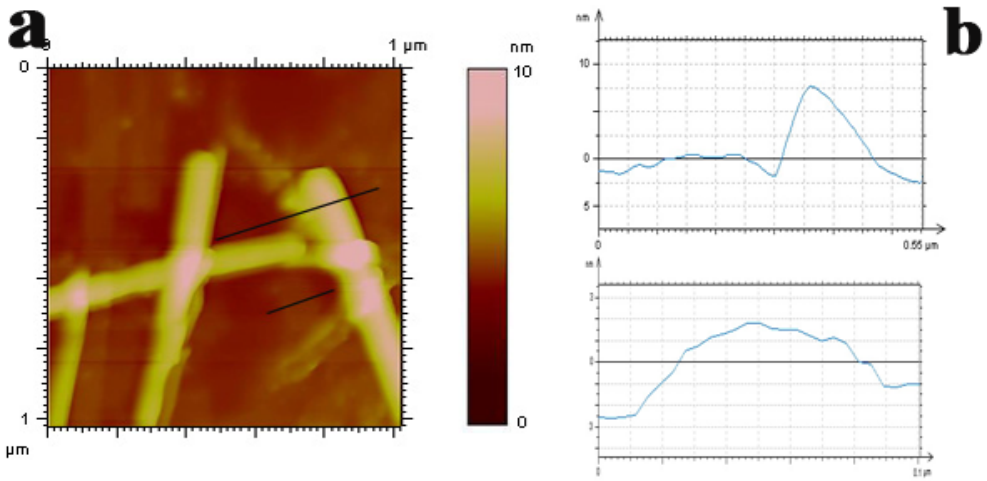

Fig. SI 1 (a) AFM image of N-doped GNRs showing widths ranging from 80 to 150 nm; and (b) height profiles for the marked areas showing layer thickness of 2 and 8 nm.

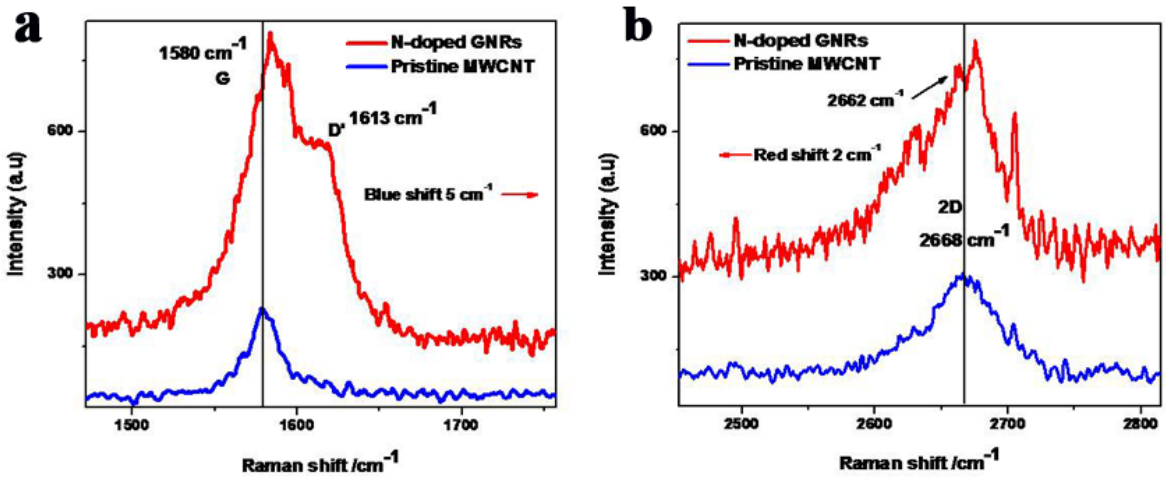

Fig. SI 2 (a) High-resolution Raman spectra showing the G band at ~1580 cm^{-1} for MWCNTs and N-doped GNRs. N-doped GNRs show a shoulder (D' band) at 1613 cm^{-1} and a relative blue shift of 5 cm^{-1} from MWCNTs. (b) High-resolution Raman spectra showing 2D band at 2668 cm^{-1} for MWCNTs and N-doped GNRs. The latter shows a red shift of 2 cm^{-1} and an extra small peak at 2662 cm^{-1}.

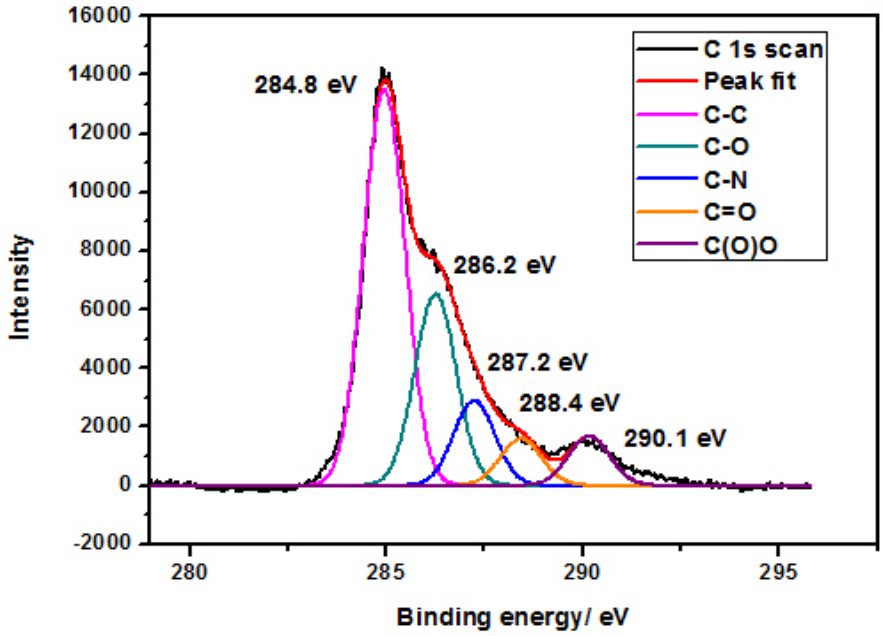

Fig. SI 3 High-resolution C 1s XPS spectrum of N-doped GNRs showing the presence of C–C, C–O, C–N, –C=O, and C(O)O bonding features at binding energies of 284.8, 286.2, 287.2, 288.4, and 290.1 eV, respectively.

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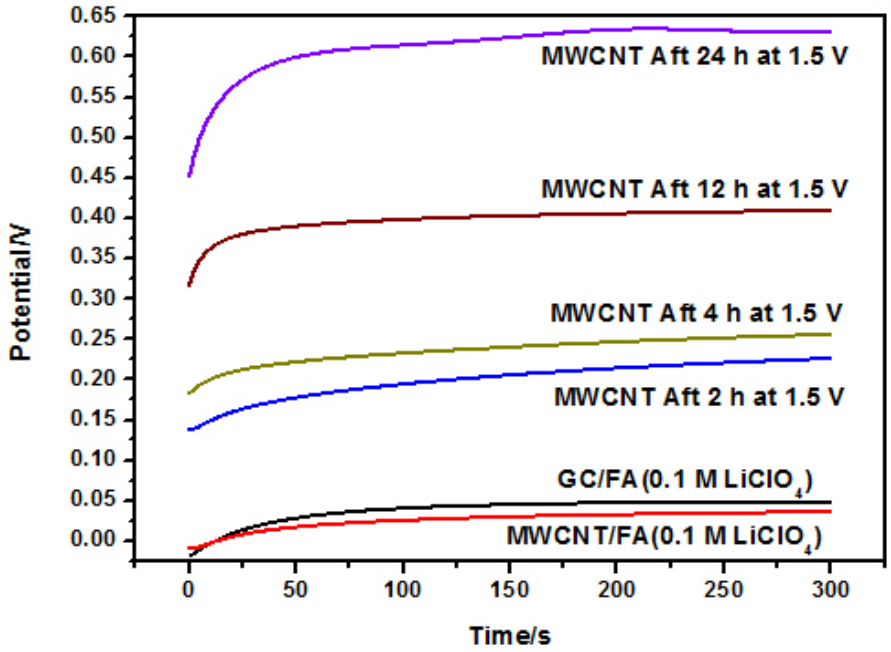

Fig. SI 4. Open circuit potentials of MWCNT-coated GC in formamide containing 0.1 M $LiClO_4$ against Pt wire quasi reference electrode. The OCPs for MWCNT-coated GC were 0.04, 0.20, 0.24, 0.40 and 0.62 V, respectively, for electric field exposure of 0, 2, 4, 12, and 24 h, respectively.