

Support Information

A simple preparation method of large–area, wavy graphene oxide nanowalls and its application to freely switchable impedimetric DNA detection

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- 1. The sequences of DNA**
- 2. XPS characterization of GNO-SPAN**
- 3. The Raman spectrum of the GNO**

References

1 The sequences of DNA

The 18 base oligonucleotide probe (ssDNA) with the following sequences: 5'-NH₂-TCT CAA TGG CTG CCT CCC-3', its complementary DNA (cDNA, target DNA, namely an 18 base fragment of PML/RARA fusion gene sequence formed from promyelocytic leukemia (PML) and retinoic acid receptor alpha (RARA)) with a sequence of 5'-GGG AGG CAG CCA TTG AGA-3', the single-base mismatched DNA of 5'-GGG AAG CAG CCA TTG AGA-3', and the non-complementary sequence DNA (ncDNA) of 5'-AGT TCA TCC TGC GCT CTT-3' were synthesized by Shanghai Sangon Biotechnology Co. Ltd. (Shanghai, China).

2 XPS characterization of GNO-SPAN

The C 1s XPS spectrum of GNO-SPAN shown in Figure S1A clearly indicated a certain extent of oxidation of graphite upon chemical exfoliation. The three prominent peaks (284.5, 285.3, 287.0 eV) observed on GNO-SPAN present the existence of a certain amount of functional groups on the surface[1,2]. From N 1s XPS spectrum (Figure S1B), the benzenoid amine with binding energy (BE) centered at 399.5 eV and the nitrogen cationic radical ($N^{+ \cdot}$) with BE at 401.9 eV are clearly identified[3]. As shown in Fig. S1C (S 2p XPS spectrum), the S 2p peaks appeared at 167.4 eV and 168.4 eV are consistent with the existence of $-SO_3^-$ groups in the GNO-SPAN, which is further confirmed by O 1s XPS spectrum (Fig. S1D, 532.7 eV) [4]. In addition, the peak at 531.1 eV in O 1s XPS spectrum is corresponding to C-O entity[5].

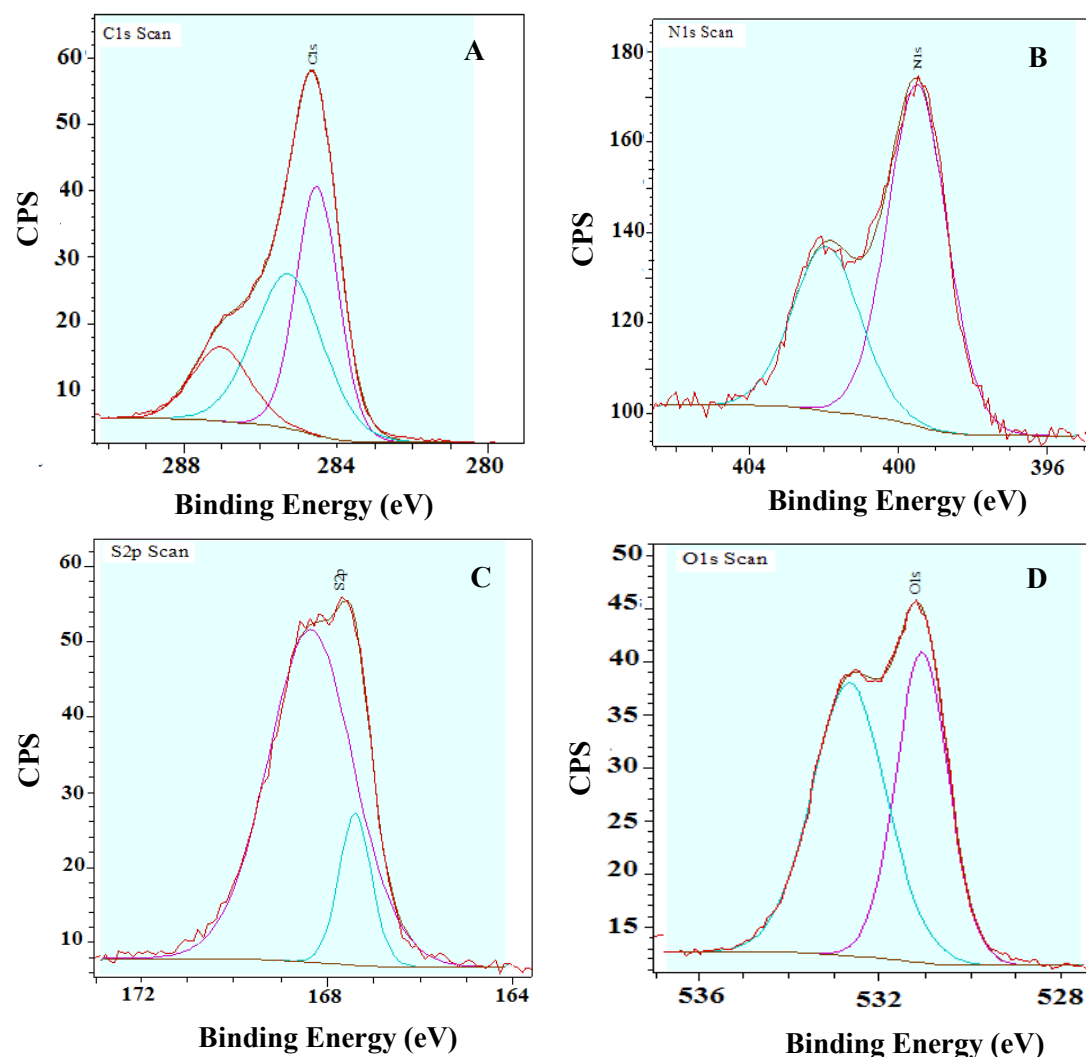


Fig. S1 The C 1s(A), N 1s(B), O 1s (C) and S 2p (D) XPS spectrum of GNO-SPAN. *Note:* count per second (CPS)

3 The Raman spectrum of the GNO

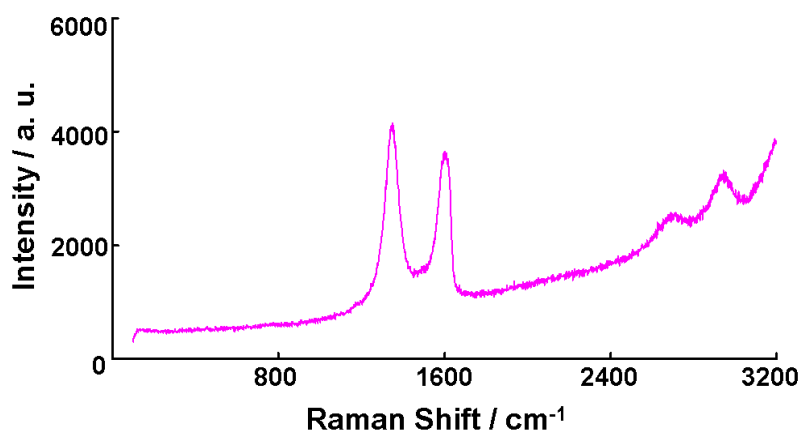


Fig.S2 The Raman spectrum of the GNO

The Raman spectrum of the GNO (Figure S2) shows the D and G bands of GNO occur at 1348.6 cm⁻¹ and 1596.4 cm⁻¹, respectively. The 2D (2694.1 cm⁻¹) band and D+G (2943.3 cm⁻¹) band had also occurred. The occurrence and the shape of the 2D band further verified the single-layer structure of the fabricated GNO film [6].

References

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