

Fig.S1. FT-IR spectrum of GO (a) and SGS(b) at 532nm.

Fig. S1 presents the FT-IR spectrum of GO (Fig. S1a) and SGS (Fig. S1b), through the figures above we could find some characteristic peaks. Which presented the successful reduction of GO to SGS nanomaterials

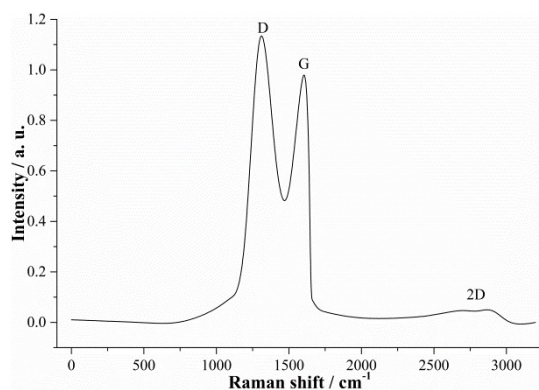


Fig.S2. Raman spectrum of GO recorded at 532 nm wavelength.

Fig. S2 showed us that the Raman spectra of GO sample is characterized by a D-band at 1300 cm⁻¹ and a G-band at 1650 cm⁻¹, which showed that the successful synthesis of GO.

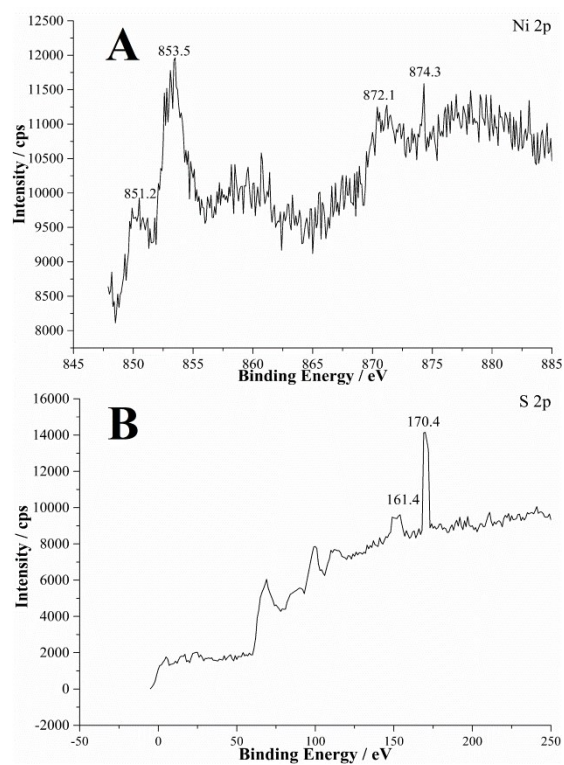


Fig.S3. (A) X-ray photoelectron spectrum of NiNPs; (B) X-ray photoelectron spectrum of Sulfur.

Fig. S3 is the larger version of Fig. 1D. We could find the peaks of Ni(II) $2p_{3/2}$ and Ni(II) $2p_{1/2}$ and S(VI) $2p_{3/2}$ and S(VI) $2p_{1/2}$, showed the state of nickel and sulfur.

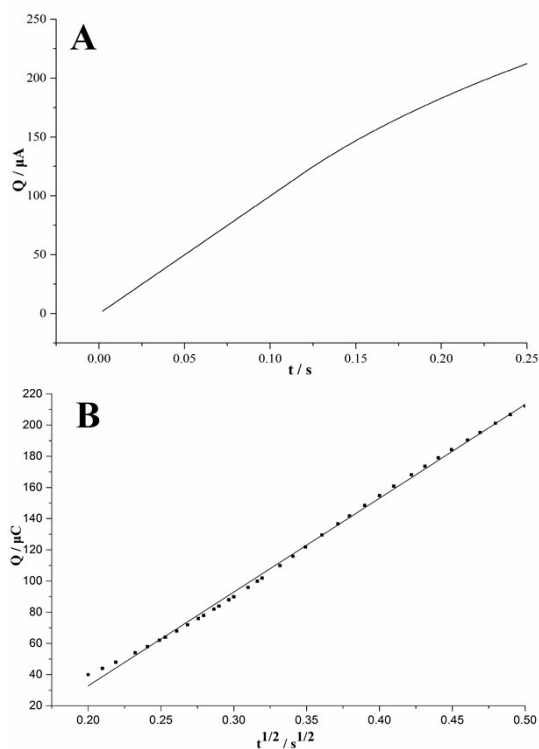


Fig.S4. (A)Chronocoulometric study of 10.0 μM THP at NiNPs/SGS/GCE in PBS (pH=6.0); (B) Relationship between charges and the square root of times.

According to Fig. S4, we could find Q is approximately linearly related with $t^{1/2}$, and we can calculate the diffusion coefficient of THP in our selected conditions.

Figure captions:

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