Electromic supplementary information(ESI):

Application of flower-like SnS2 nanoparticle for direct electrochemistry of hemoglobin and its electrocatalysis

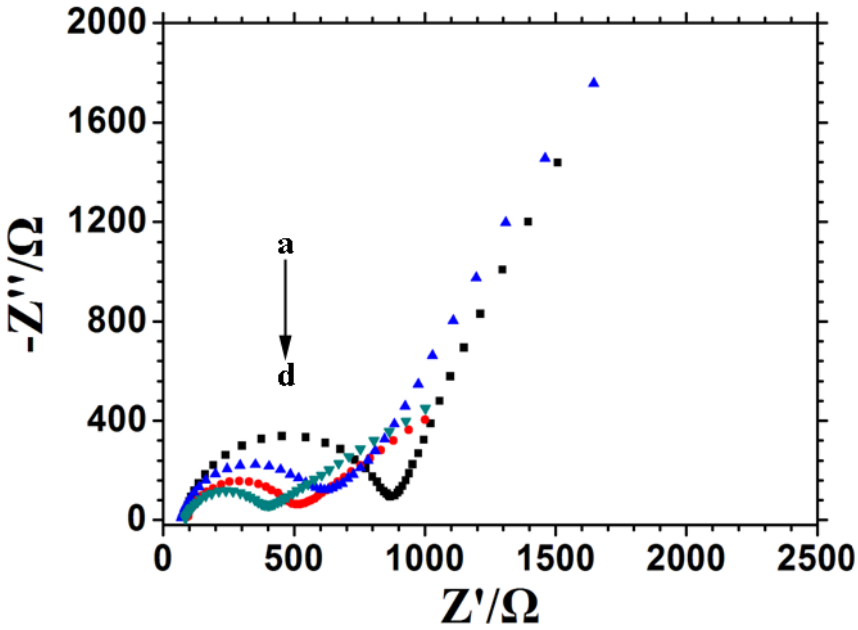

Fig.S1 EIS of (a) Nafion/Hb/GCE, (b) Nafion/Hb-SnS_2/GCE, (c) Nafion/Hb-IL/GCE, (d) Nafion/Hb-SnS_2-IL/GCE in the presence of 5.0 mmol L^{-1} $[Fe(CN)_6]^{3-/4-}$ and 0.1 mol L^{-1} KCl with the frequencies ranging from 10^5 to 0.1 Hz.

Electrochemical impedance spectroscopy (EIS) is an effective method to monitor impedance change of the elctrode surface during the modification process, which was performed in a solution mixture of 5.0 mmol L^{-1} $[Fe(CN)_6]^{3-/4-}$ and 0.1 mol L^{-1} KCl with the frequency ranging swept from 10^5 to 0.1 Hz. The Nyquist plots of different modified electrodes are shown in Fig. S1 and the semicircle diameter equals the electron transfer resistance (Ret). For Nafion/Hb/GCE (curve a), the value of Ret was found to be 375.6 Ω. After the SnS_2 nanoflower introduced into the composite film, the Ret value of Nafion/Hb-SnS_2/GCE (curve b) was recorded as 281.4 Ω, indicating that the presence of SnS_2 nanoflower contributed to enhance the interface conductivity of the composite film. It is mainly because the norrow bindgap and the flower-like nanostructure give the SnS_2 nanoflower a good conductivity and a high surface area, which can facilitate the electron transfer of the redox probe. After the addition of high conductive IL, the Ret value of the Nafion/Hb-IL/GCE (curve c) decreased to 242.5 Ω. And for the Nafion/Hb-SnS_2-IL/GCE (curve d), the smallest Ret value appeared, which was attributed to the synergistic effect of the coexistence of SnS_2 nanoflower and IL.