Supporting Information

Amino-functionalized SiC electrodes for highly sensitive simultaneous detection of Pb^{2+}, Cd^{2+}, Cu^{2+}, Hg^{2+}

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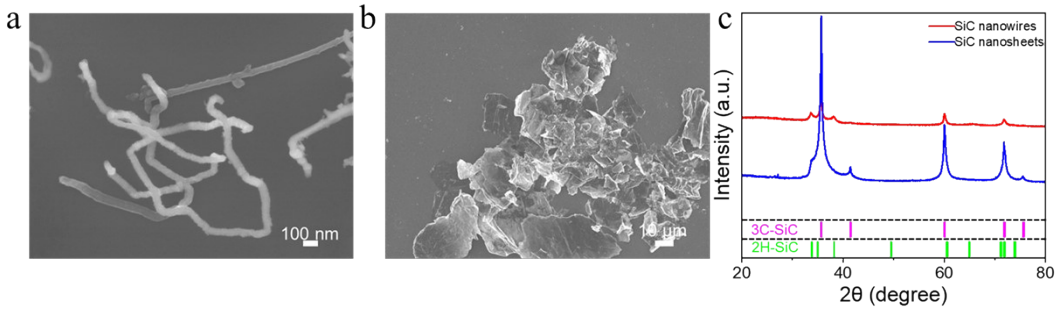

Fig. S1 SEM images of (a) SiC nanowires (b) SiC nanosheets(c) XRD patterns of SiC nanowires and nanosheets

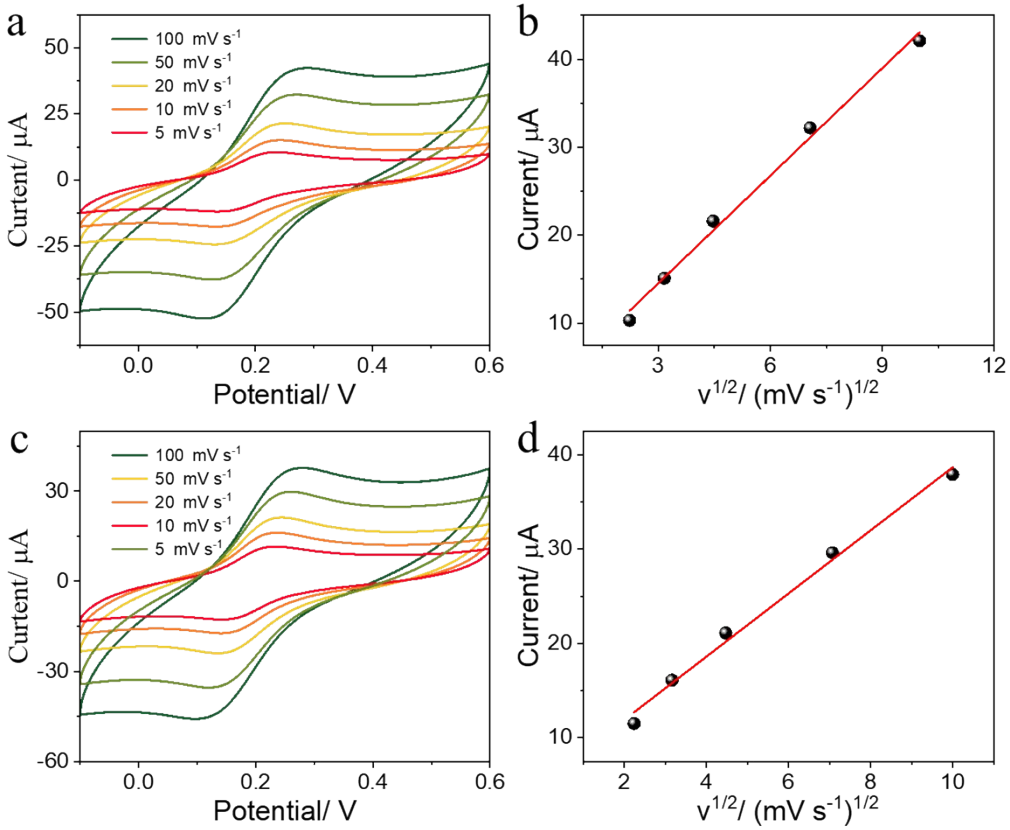

Fig. S2 (a, c) CV curves recorded at different scan rates (5, 10, 20, 50, and 100 mV s^{-1}) in 0.1 M KCl containing 0.5 mM $K_3[Fe(CN)_6]$. (b, d) corresponding linear plots of anodic peak current (Ip) versus the square root of scan rate ($v^{1/2}$) at (a, b) NH_2-SiC nanosheet modified electrode and (c, d) NH_2-SiC nanowire modified electrode.

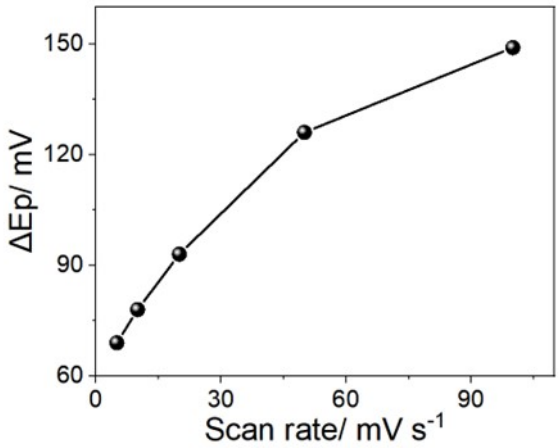

Fig. S3 Dependence of the peak-to-peak separation (ΔEp) on scan rate for the $[Fe(CN)_6]^{3-/4-}$ redox couple at the modified electrode in 0.1 M KCl containing 0.5 mM $K_3[Fe(CN)_6]$.

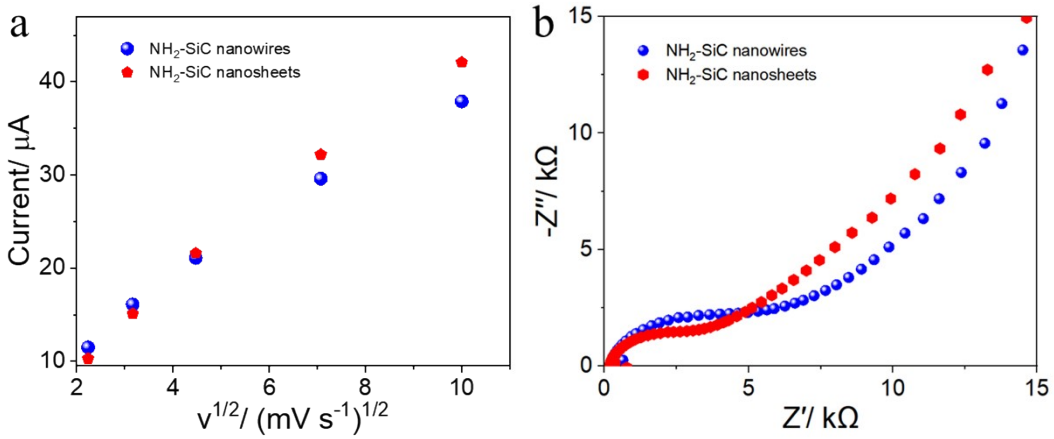

Fig. S4 a) Ip vs. $v^{1/2}$ plots and (b) Nyquist plots of NH_2-SiC nanowires and nanosheets modified GCE electrodes.

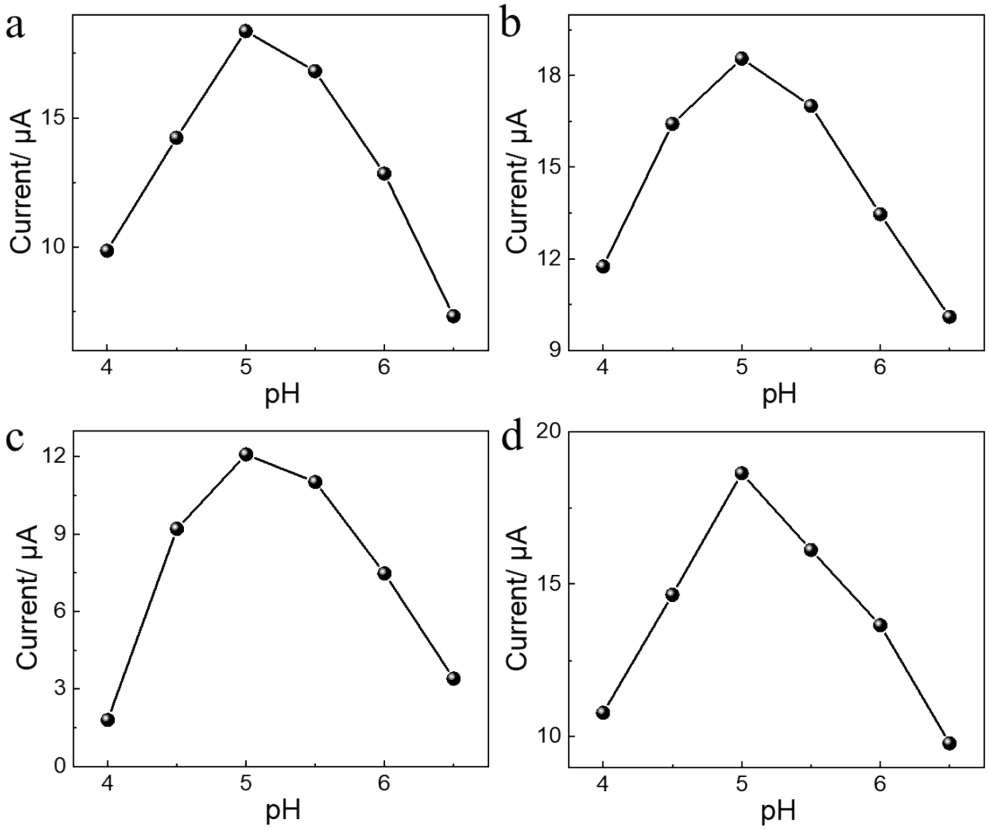

Fig. S5 Optimum pH conditions for NH_2-SiC nanowires-modified electrodes toward (a) Cd^{2+} (b) Pb^{2+} (c) Cu^{2+} (d) Hg^{2+}

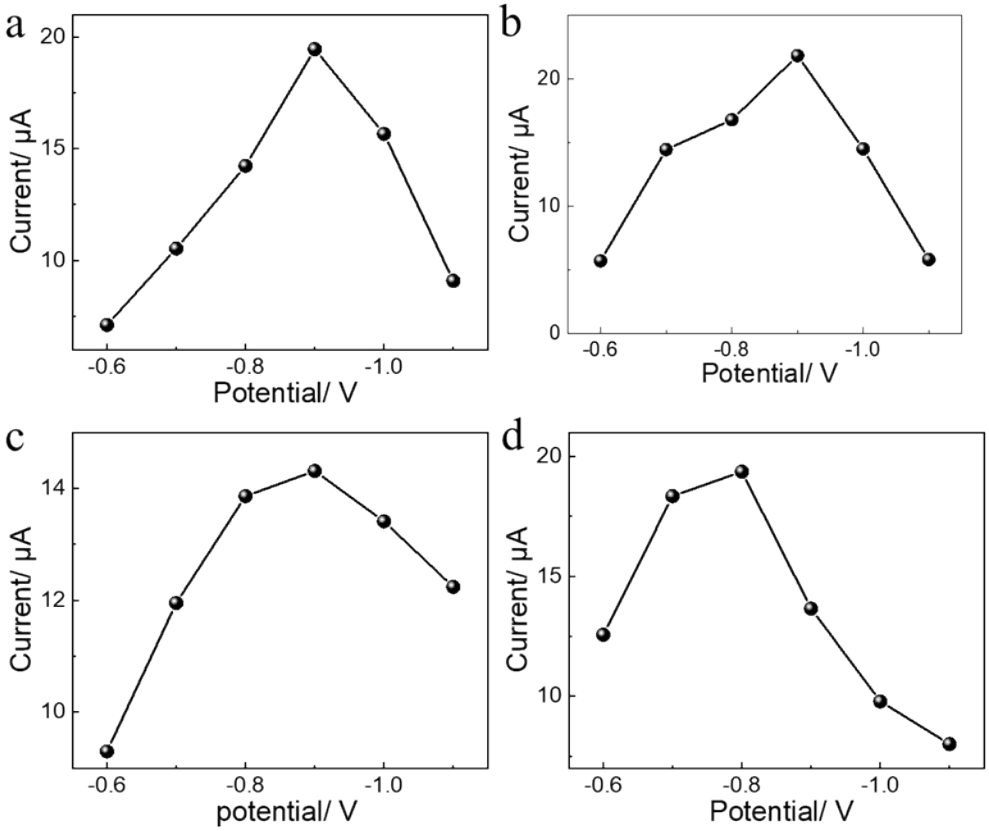

Fig. S6 Optimum deposition potential conditions for NH_2-SiC nanowires-modified electrodes toward (a) Cd^{2+} (b) Pb^{2+} (c) Cu^{2+} (d) Hg^{2+}

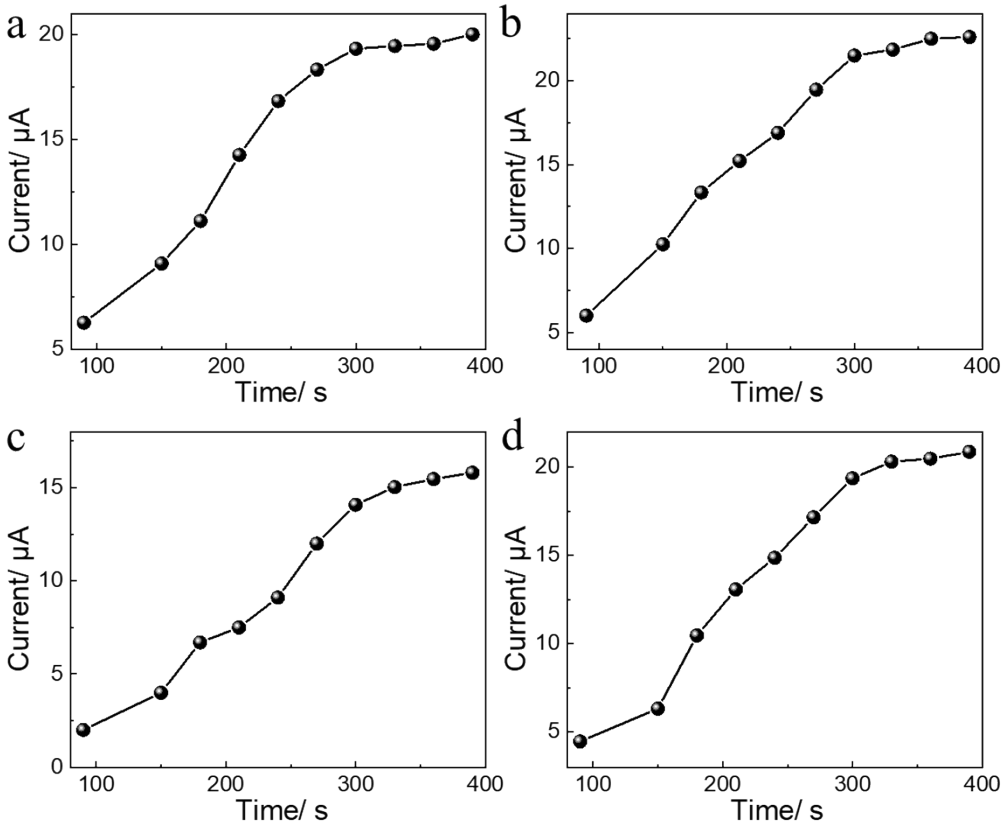

Fig. S7 Optimum deposition time conditions for NH_2-SiC nanowires-modified electrodes toward (a) Cd^{2+} (b) Pb^{2+} (c) Cu^{2+} (d) Hg^{2+}

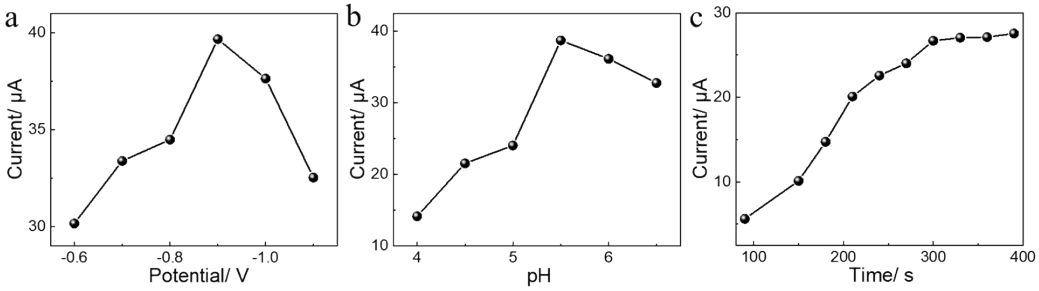

Fig. S8 Optimum experimental conditions for NH_2-SiC nanosheets-modified electrodes (a) deposition potential (b) pH (c) deposition time

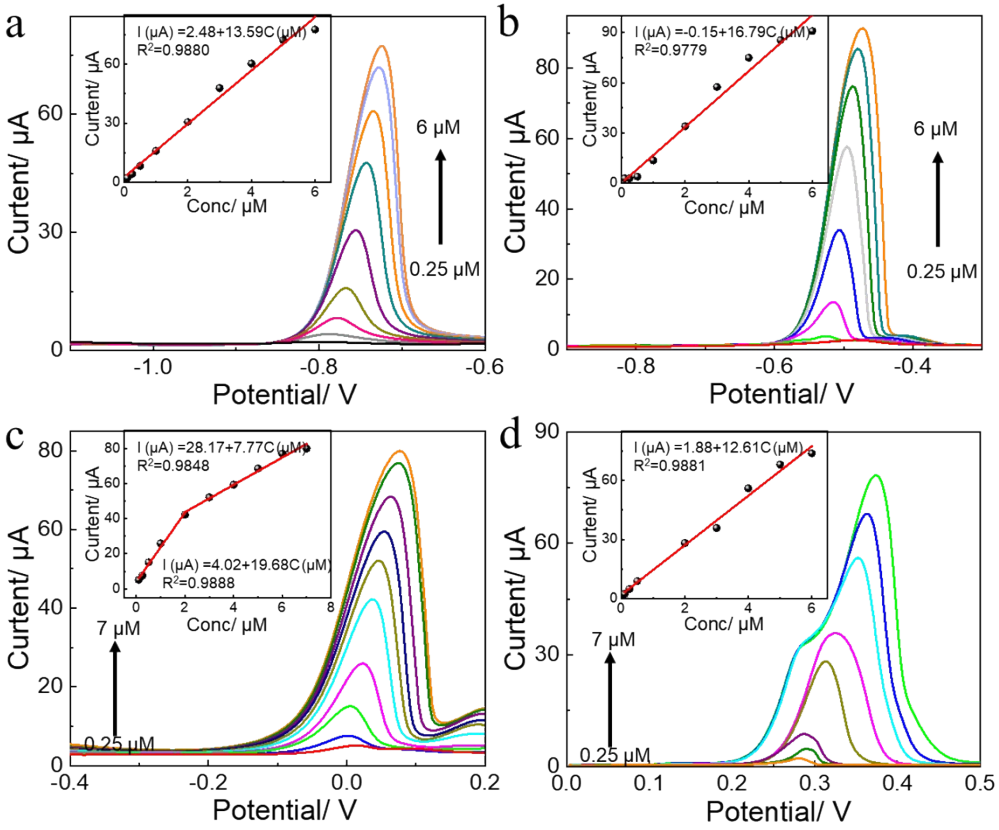

Fig. S9 Individual detection of (a)Cd^{2+}, (b)Pb^{2+}, (c)Cu^{2+} and (d)Hg^{2+} using the NH_2-SiC nanowires-modified GCE. The upper-left insets show the corresponding curves of stripping peak current against HMIs concentration.

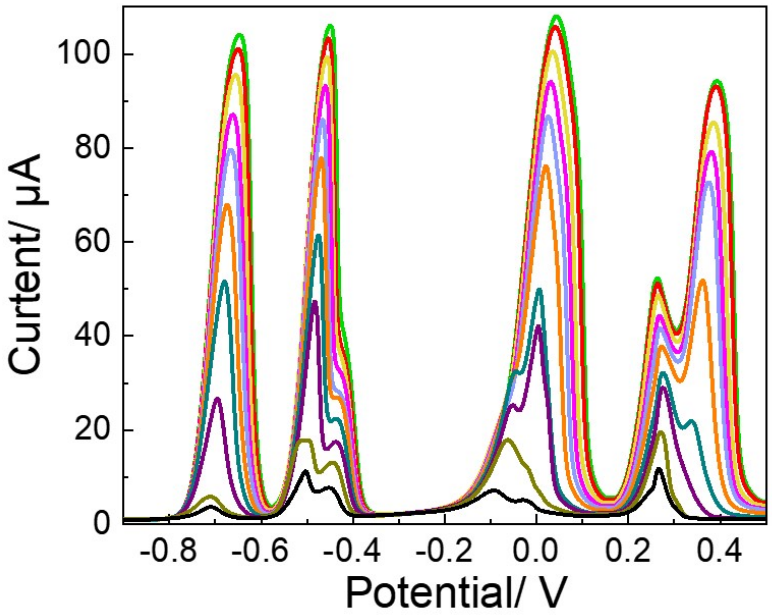

Fig. S10 Simultaneous detection of Cd^{2+}, Pb^{2+}, Cu^{2+}, and Hg^{2+} using the NH_2-SiC nanosheets-modified GCE

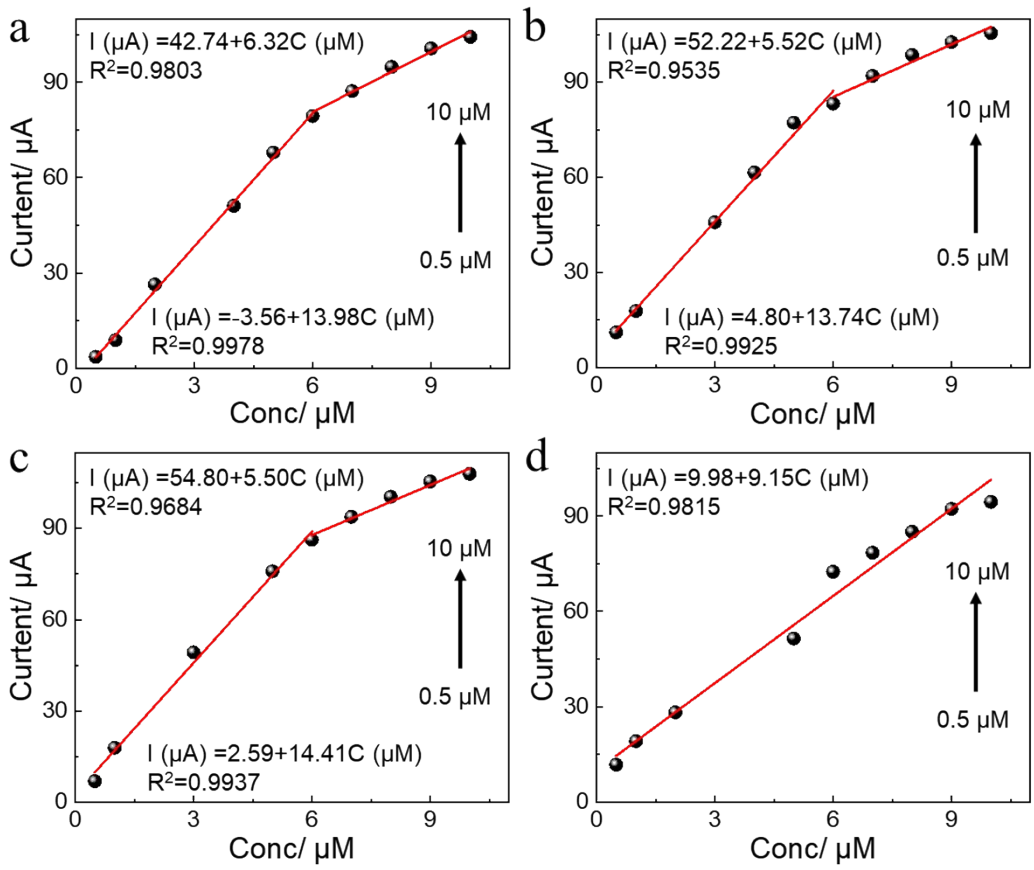

Fig. S11 Calibration curves of SWASV stripping peak current against ion concentration for (a) Cd^{2+} (b) Pb^{2+} (c) Cu^{2+} (d) Hg^{2+} at NH_2-SiC nanowires-modified GCE