JCSU-2401-0028 Supplementary materials

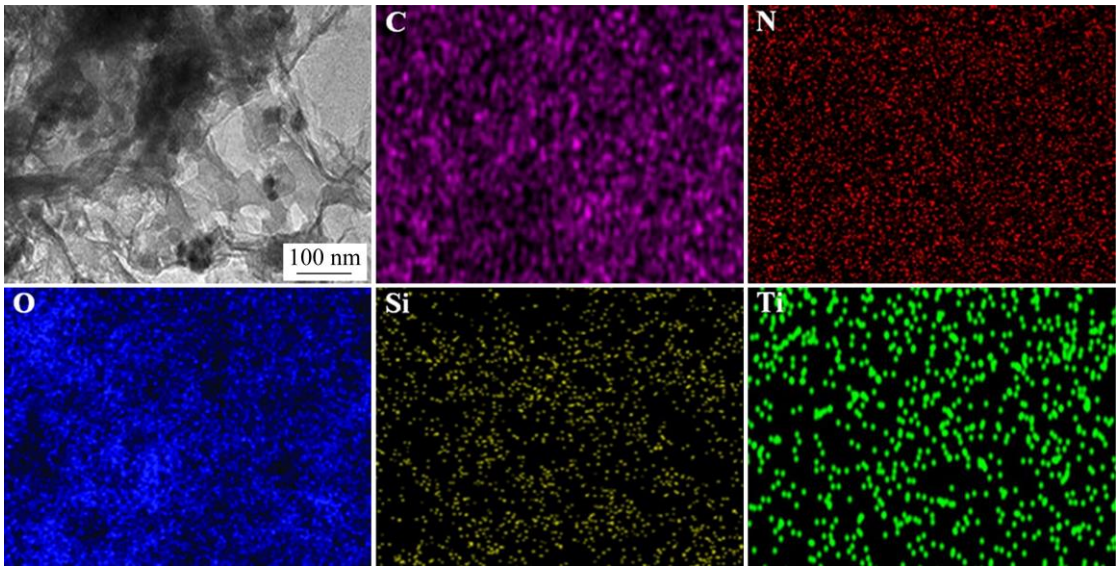

Figure S1 TEM/EDX mapping of GCN/EAMS-TiO_2 nanocomposite

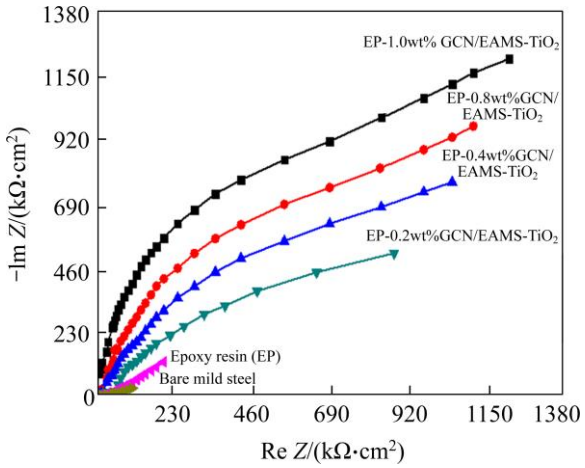

Figure S2 Nyquist plots for epoxy coating with different mass percentages of GCN/EAMS-TiO_2 immersed in seawater for 1 d

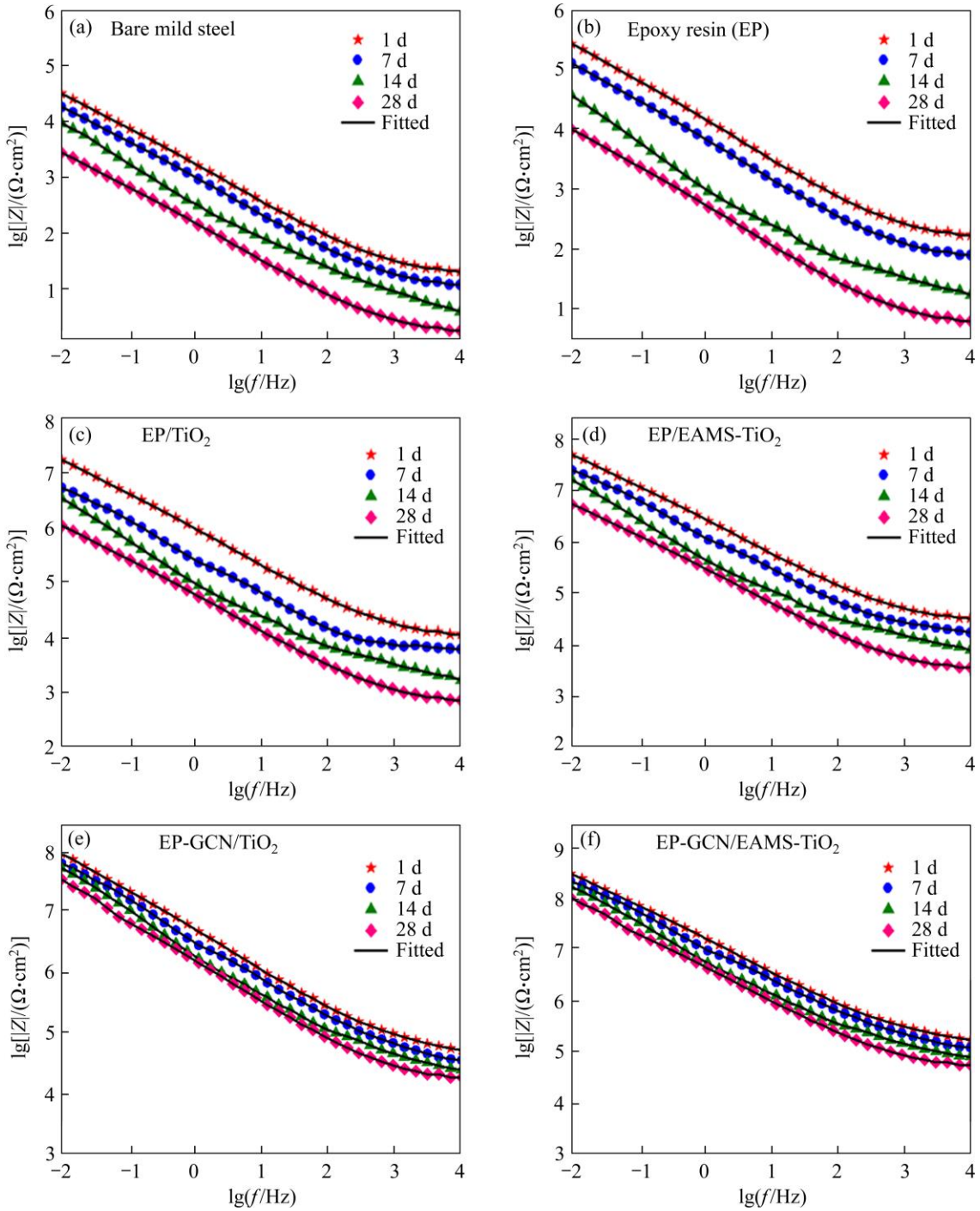

Figure S3 Bode resistance plots for (a) bare mild steel, (b) pure EP, (c) EP/TiO_2, (d) EP/EAMS-TiO_2, (e) EP-GCN/TiO_2, and (f) EP-GCN/EAMS-TiO_2 nanocomposite coated mild steel for 1 d, 7 d, 14 d, and 28 d of immersion in seawater

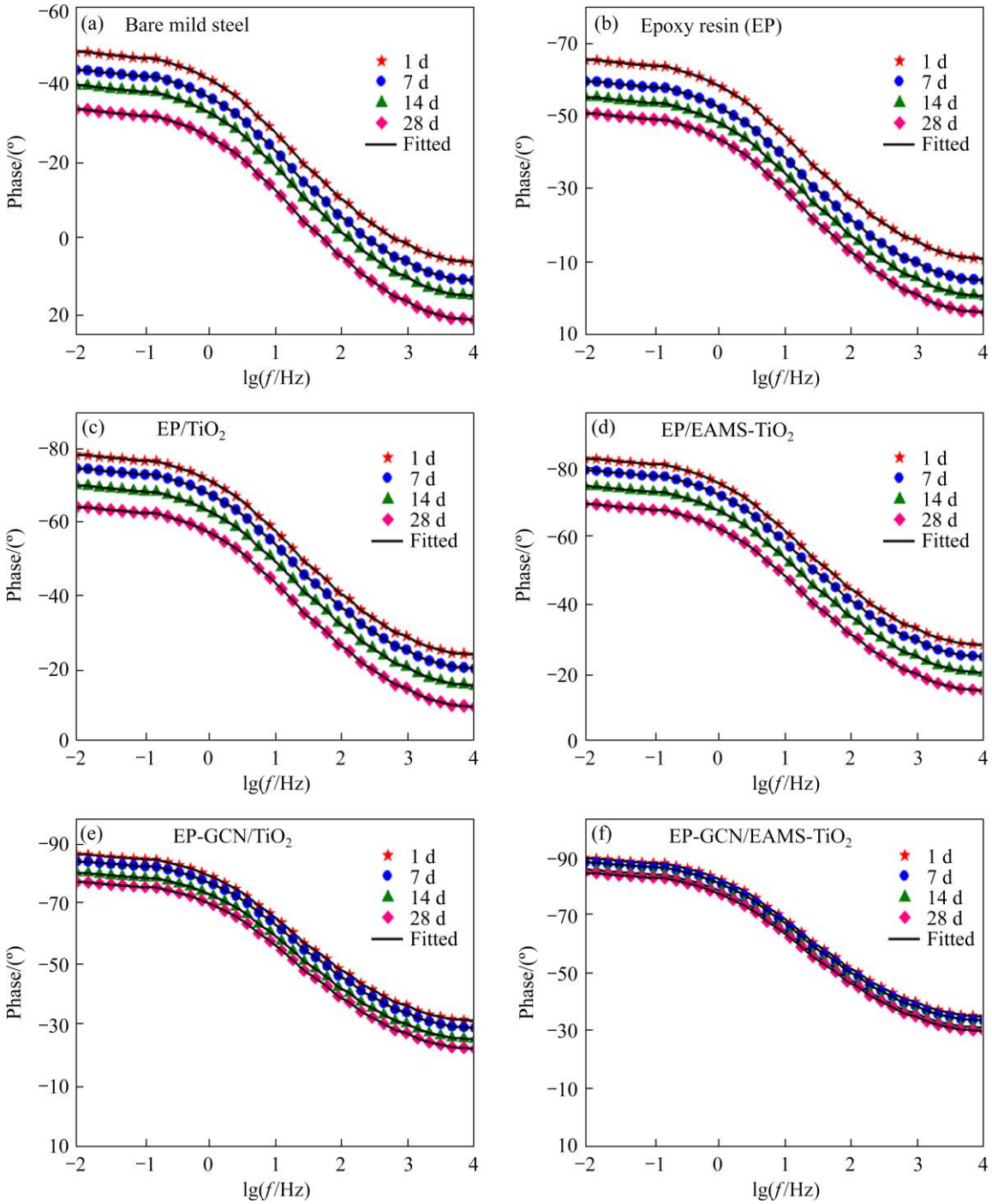

Figure S4 Bode phase angle plots for (a) bare mild steel, (b) pure EP, (c) EP-TiO_2, (d) EP/EAMS-TiO_2, (e) EP-GCN/TiO_2, and (f) EP-GCN/EAMS-TiO_2 nanocomposite coated mild steel for 1 d, 7 d, 14 d, and 28 d of immersion in seawater

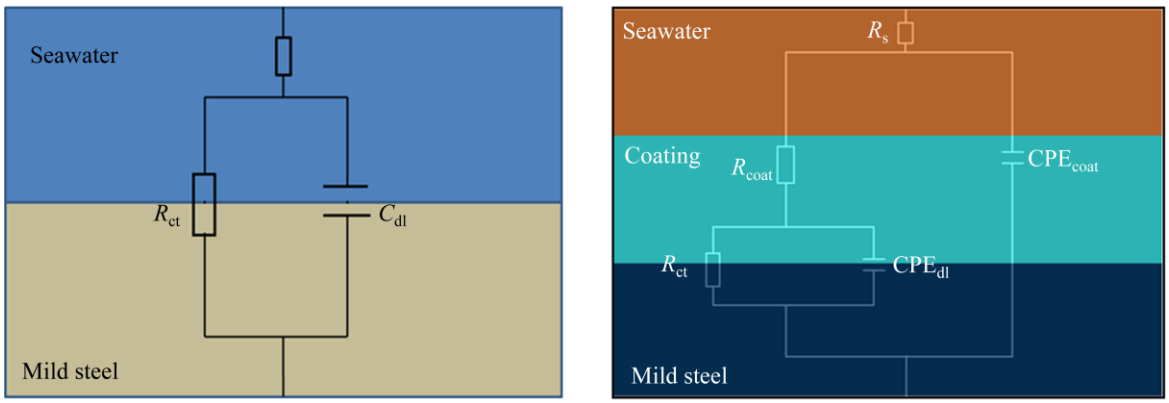

Figure S5 Equivalent electrochemical circuit for (a) bare mild steel, (b) pure EP, EP/TiO_2, EP/EAMS-TiO_2, EP-GCN/TiO_2 and EP-GCN/EAMS-TiO_2 coated steel for several days in seawater

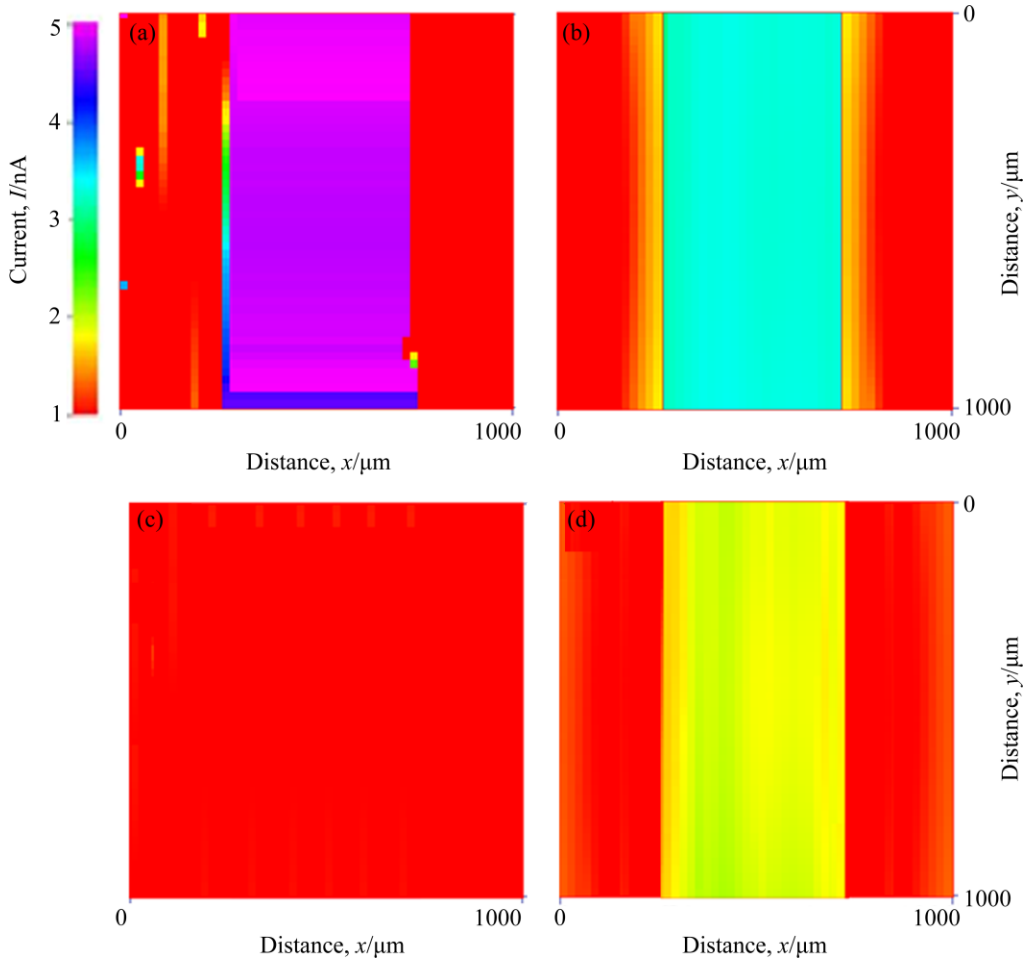

Figure S6 SECM analysis of mild steel coated with GCN/EAMS-TiO_2 nanoparticles with (a) 0.2 % GCM; (b) 0.4% GCN; (c) 0.6% GCN and (d) 0.8% GCN for 1 d immersion in seawater at tip potential of 0.60 V vs. Ag/AgCl/KCl reference electrode for the detection of ferrous ions

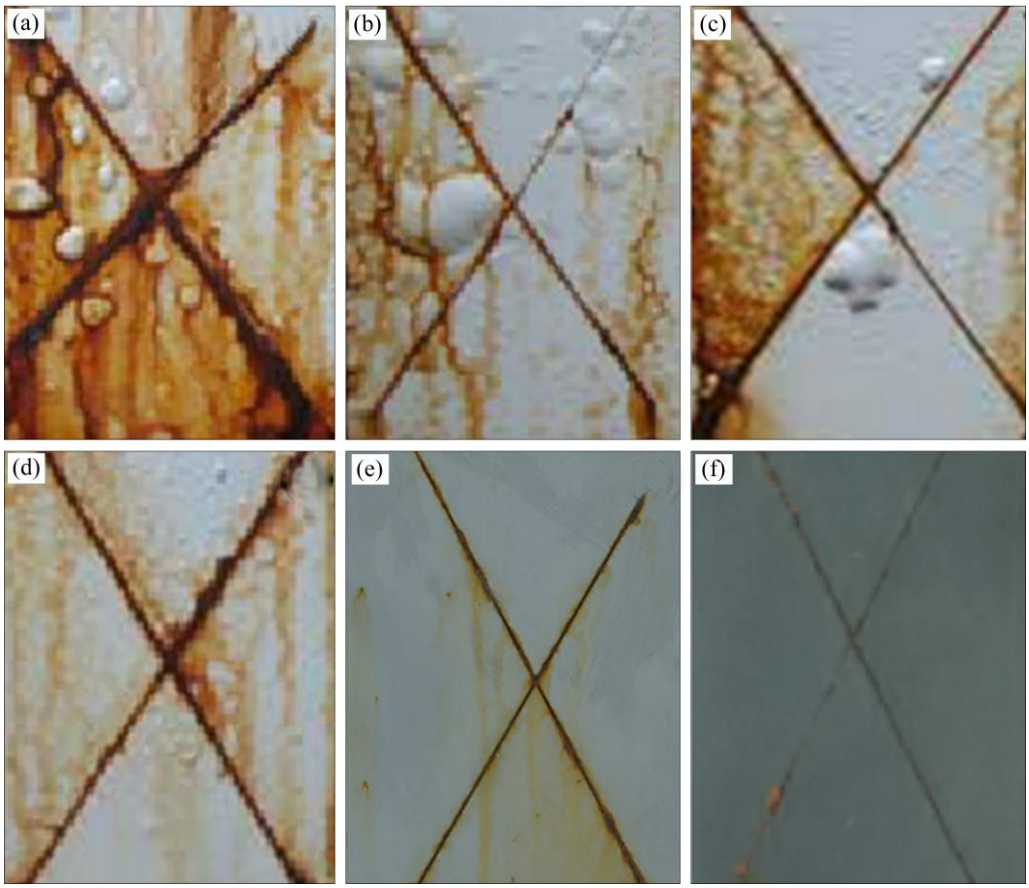

Figure S7 Salt spray analysis of (a) pure EP, (b) EP/TiO_2, (c) EP/GCN, (d) EP/EAMS-TiO_2, (e) EP-GCN/TiO_2 and (f) EP-GCN/EAMS-TiO_2 nanocomposite coated mild steel after 28 d exposure to seawater