Supplementary information

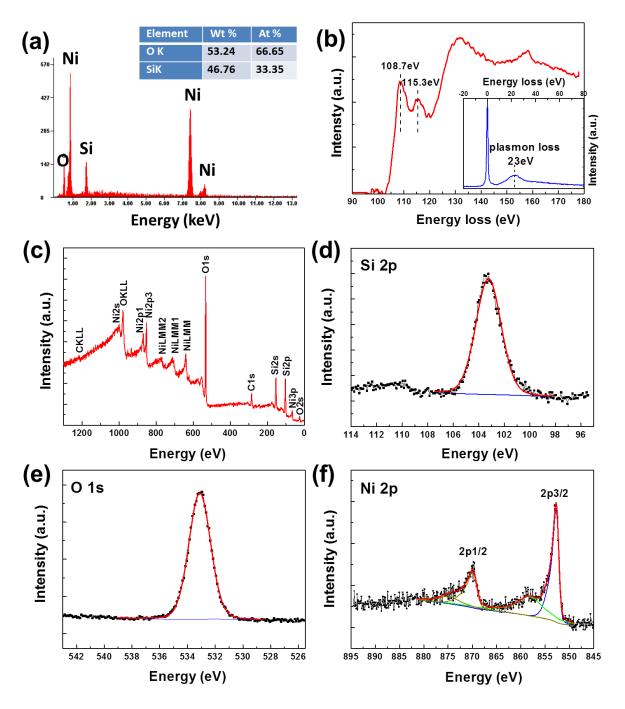


Figure S1. Characterizations of the oxidized Si sample (a) EDX; (b) Energy loss spectrum displaying the near-edge fine structure of Si $L_{2,3}$ edge. Plasmon peak at low energy is shown in the inset. (c) XPS survey scan, and fine scan spectra of (d) Si 2p; (e) O 1s; (f) Ni 2p peaks.