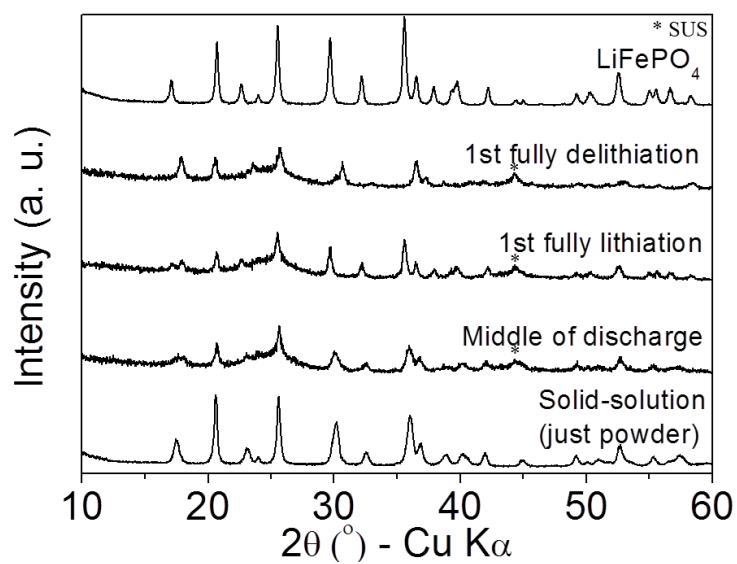


## Supporting information



**S.1** XRD patterns of bare  $\text{LiFePO}_4$  nanoparticle. And XRD patterns of SS nanoparticle and its fully delithiated and lithiated and state of discharge 50% electrode.