

## Supplementary File

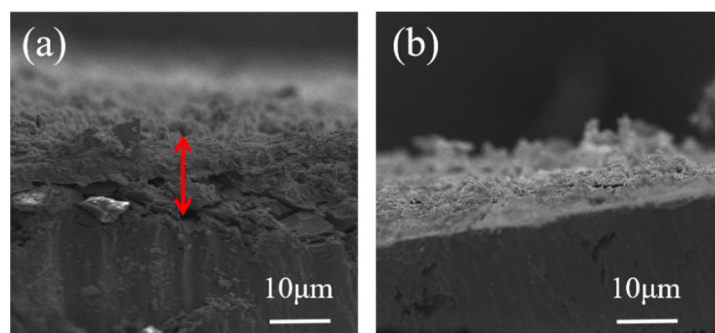


Figure S1 The cross-sectional images taken on the samples made by different method: the plate sample was directly cut and vertically observed without polishing or grinding.

We found a consistent trend in that an excessively high current density resulted in a thinner coating and a relatively porous surface structure, and this preparation approach helps to avoid the possible detachment of porous coating. Although the observed thickness may be slightly inaccurate due to difficulties in placing the sample at an exact vertical angle during SEM observation, the reported trend in thickness variation is consistent with the data observed from the cross-sectional sample made by conventional mounting and polishing procedures.