

Supplementary Materials

Co(OH)₂ Nanoflowers Decorated α -NiMoO₄ Nanowires as a Bifunctional Electrocatalyst for Efficient Overall Water Splitting

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The XRD of Co(OH)₂/CC was also collected to analysis the material composition. As shown in Figure S1, all the diffraction peaks of the prepared Co(OH)₂/CC match well with the standard card JCPDS#46-0605, which indicates the prepared Co(OH)₂/CC is α -Co(OH)₂/CC. The diffraction peaks of α -Co(OH)₂/CC at 11.54°, 33.54°, 34.47°, 38.96°, 46.31°, 59.81°, 61.16°, 65.03° and 70.84° are corresponded to the characteristic peaks of (003), (100), (102), (105), (108), (110), (113), (116) and (202) crystal planes, respectively. Moreover, the (111) crystal plane of C corresponding to the diffraction peak at 30.55° is consistent with the standard card JCPDS#75-2078, indicating that α -Co(OH)₂/CC has been successfully synthesized.

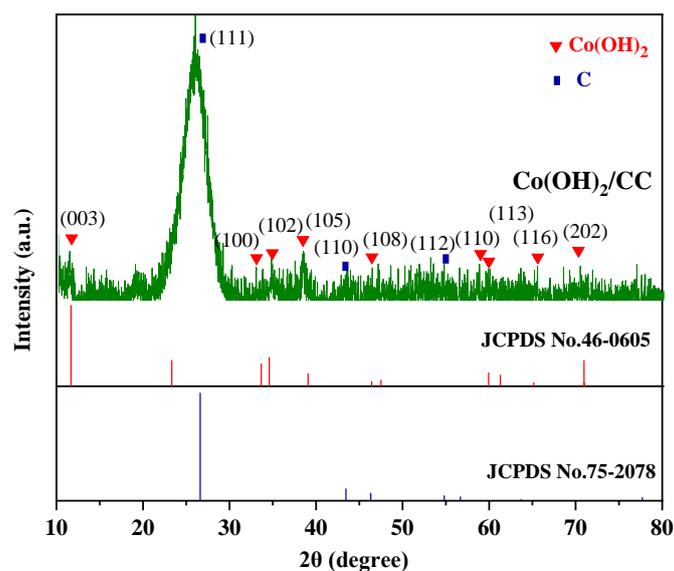


Figure S1. XRD pattern of $\text{Co(OH)}_2/\text{CC}$

According to the LSV curves in Figure S2, the $\text{Co(OH)}_2/\alpha\text{-NiMoO}_4$ NWs/CC electrode shows the lowest overpotential of 183.01 mV at the current density of 10 mA cm^{-2} , which is 149.92 mV and 223.10 mV less than $\alpha\text{-NiMoO}_4$ NWs/CC and $\text{Co(OH)}_2/\text{CC}$, respectively. It can be concluded that $\text{Co(OH)}_2/\alpha\text{-NiMoO}_4$ NWs/CC electrode requires the lowest overpotential and has the best performance of electrocatalytic hydrogen evolution at the same current density.

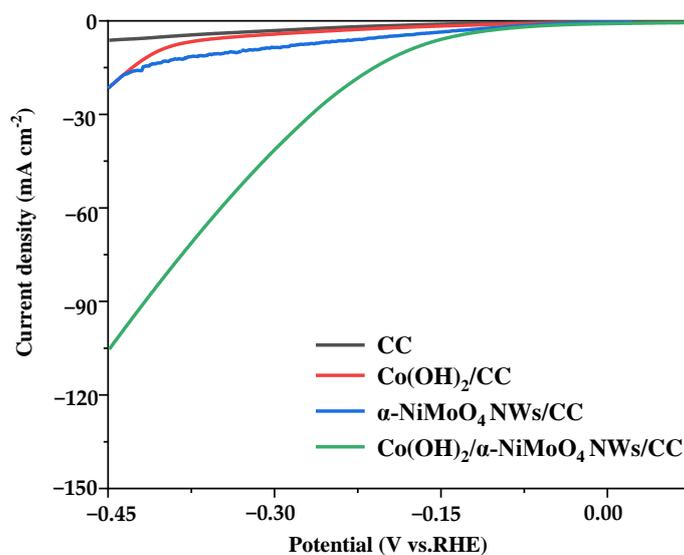


Figure S2. LSV curves of different catalysts for HER

According to the LSV curves in Figure S3, bare carbon cloth still has no OER activity at higher current densities. The $\text{Co(OH)}_2/\alpha\text{-NiMoO}_4$ NWs/CC electrode shows the lowest overpotential of 170.26 mV at the current density of 10 mA cm^{-2} , which is 109.87 mV and 267.74 mV less than $\alpha\text{-NiMoO}_4$ NWs/CC and $\text{Co(OH)}_2/\text{CC}$, respectively. It can be concluded that $\text{Co(OH)}_2/\alpha\text{-NiMoO}_4$ NWs/CC electrode requires the lowest overpotential and has the best performance of electrocatalytic oxygen evolution at the same current density.

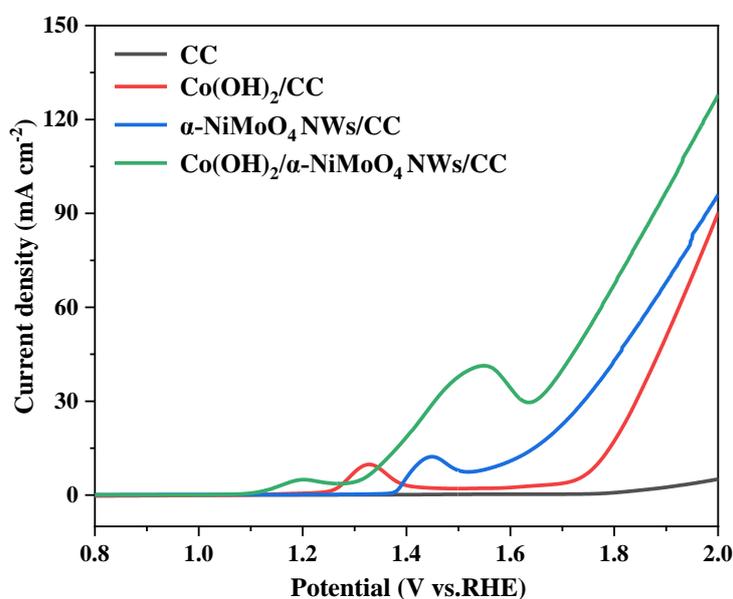


Figure S3. LSV curves of different catalysts for OER