Supporting Information

Defect Mediated Adsorption of Metal Ions for Constructing Ni Hydroxide/MoS_2 Heterostructure as High-Performance Water Splitting Electrocatalysts

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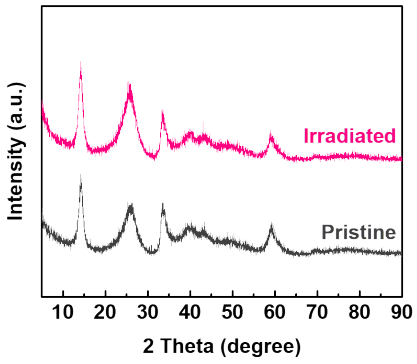

Figure S1. The XRD patterns of the pristine MoS_2 and irradiated MoS_2 nanosheets.

Based on the full width at half maximum (FWHM) value of the (002) diffraction peak, the thickness of MoS_2 nanosheets along the c axis can be calculated using

Scherrer equation: $D = \frac{K\gamma}{B\cos\theta}$

where K is the Scherrer constant, equaling to 0.89; γ is the wavelength of the X-ray, equaling to 0.154 nm; B is the FWHM value of the (002) diffraction peak; θ is the Bragg diffraction angle of (002) plane. The thickness of MoS_2 nanosheets was determined to be 7.1 nm, which corresponded to about 11 S-Mo-S layers

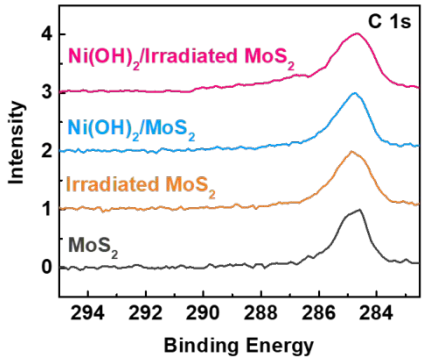

Figure S2. The C 1s XPS spectra of the pristine MoS_2, irradiated MoS_2, $Ni(OH)_2/MoS_2$ and $Ni(OH)_2$/irradiated MoS_2 heterostructure.