

Supporting Information

Development of BiOI as an effective photocatalyst for oxygen evolution reaction under simulated solar irradiation

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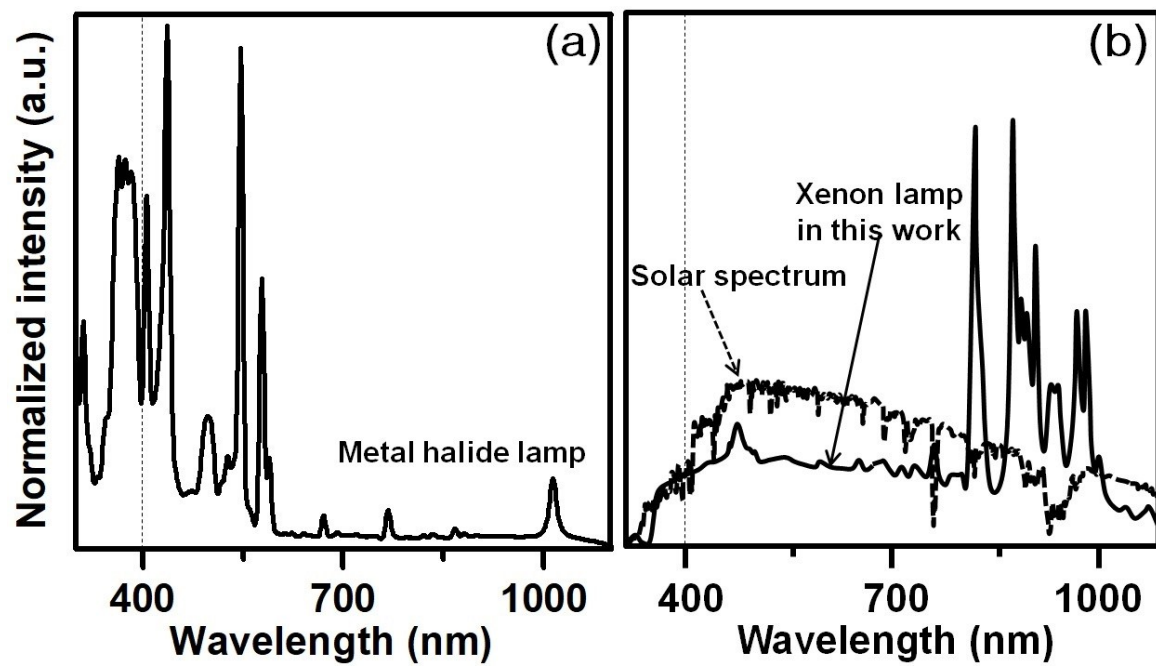


Figure S1 Spectral irradiance of (a) metal halide lamp and (b) xenon lamp used in this work in comparison to solar radiation.

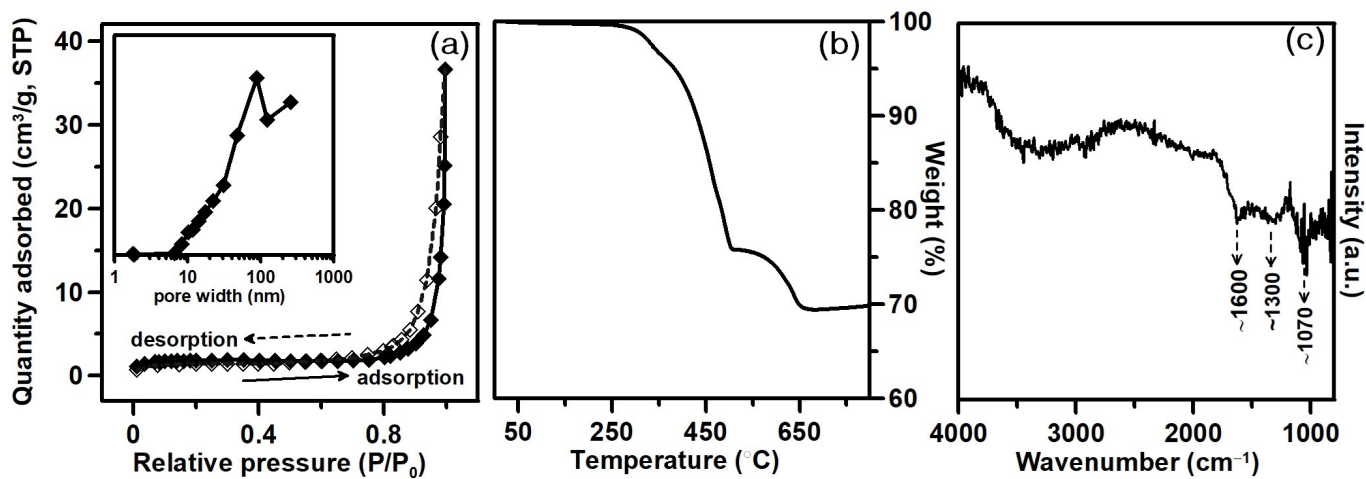


Figure S2 (a) N₂ adsorption-desorption isotherm, (b) TGA plot, and (d) FTIR measurement of BiOI sample. Inset of (a) shows the Barrett–Joyner–Halenda (BJH) pore diameter of the sample.

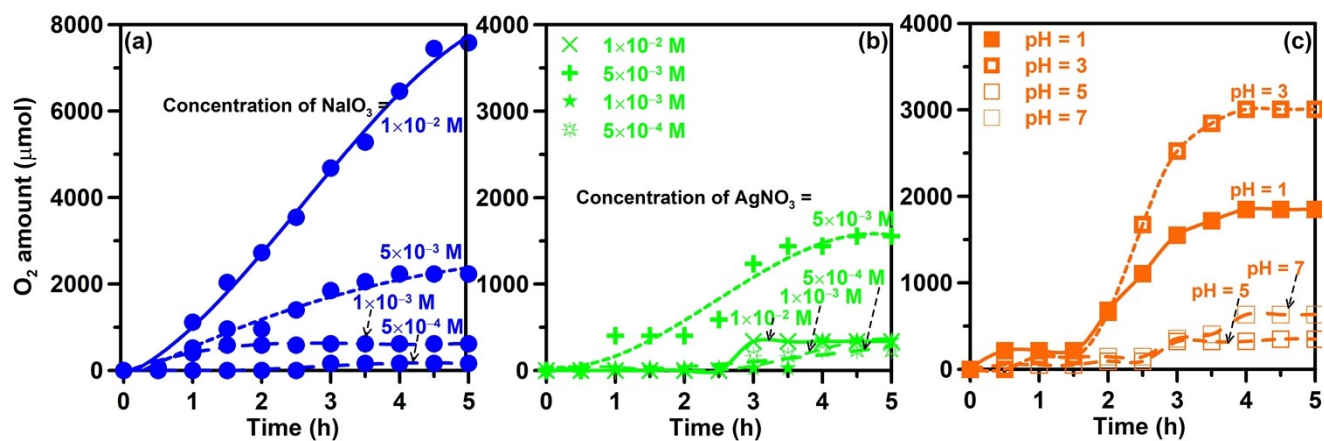


Figure S3 Photocatalytic O₂ evolution using BiOI under metal halide lamp irradiation in the presence of different concentrations of the electron mediator and the pH adjuster: (a) NaIO₃, (b) AgNO₃, and (c) adjusted pH value using HNO₃ to 1, 3, 4, and 7.

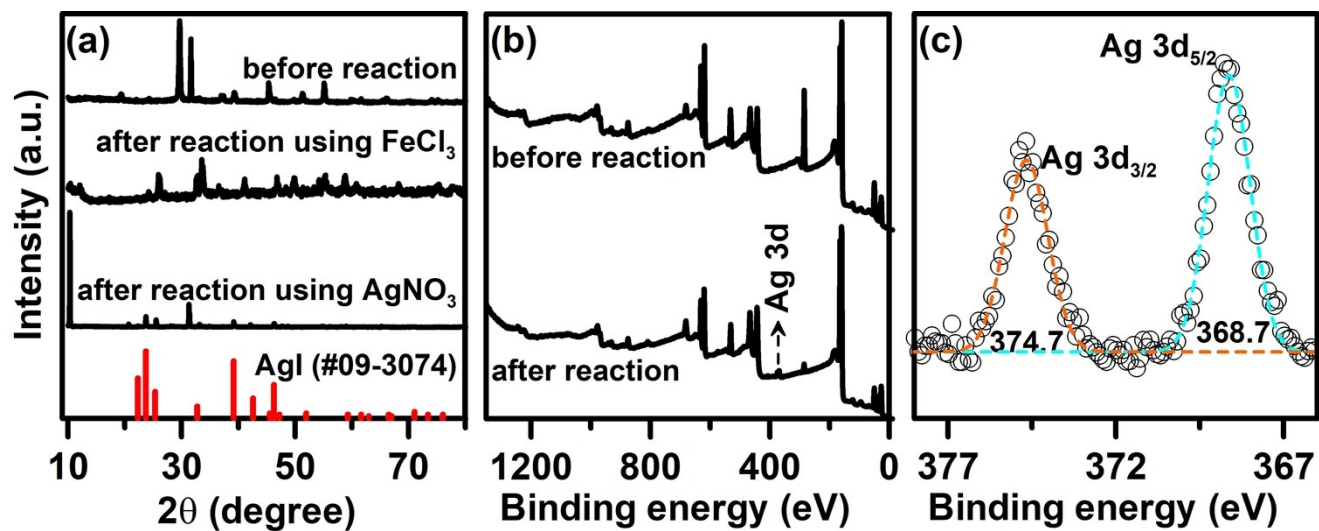


Figure S4 (a) XRD patterns and XPS spectra for (b) survey scan and (c) Ag 3d state of BiOI before and after the reaction with the addition of AgNO_3 as the electron mediator.

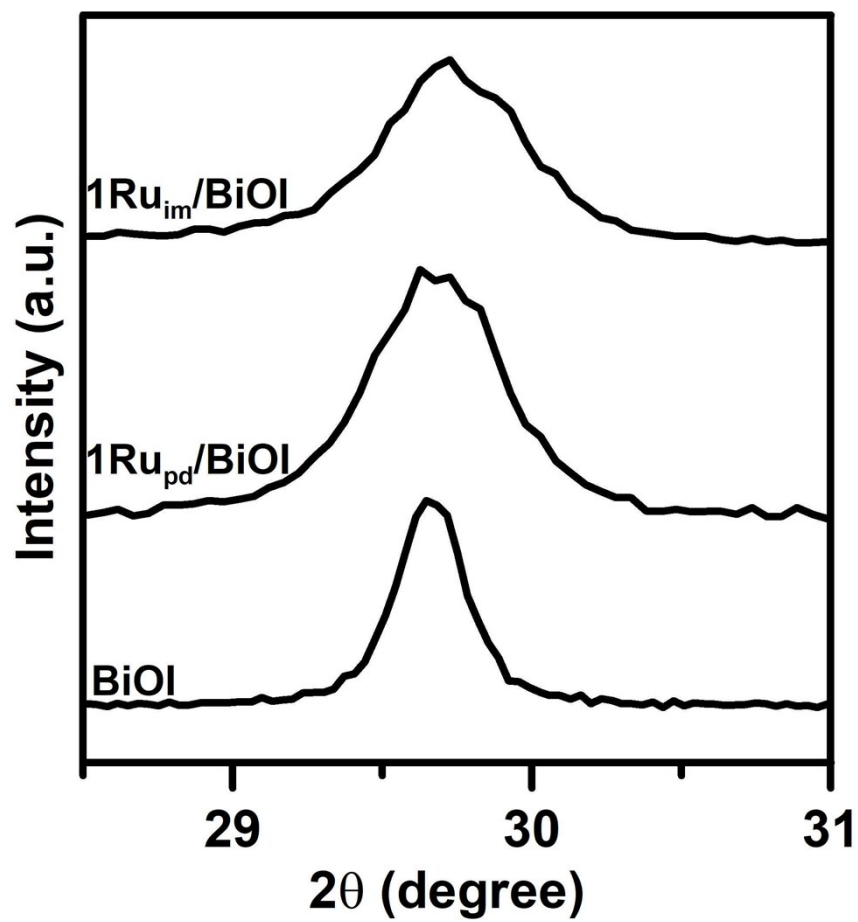


Figure S5 Magnification of the XRD patterns in the range of 28.5°–31° for BiOI, 1Ru_{pd}/BiOI and 1Ru_{im}/BiOI samples.

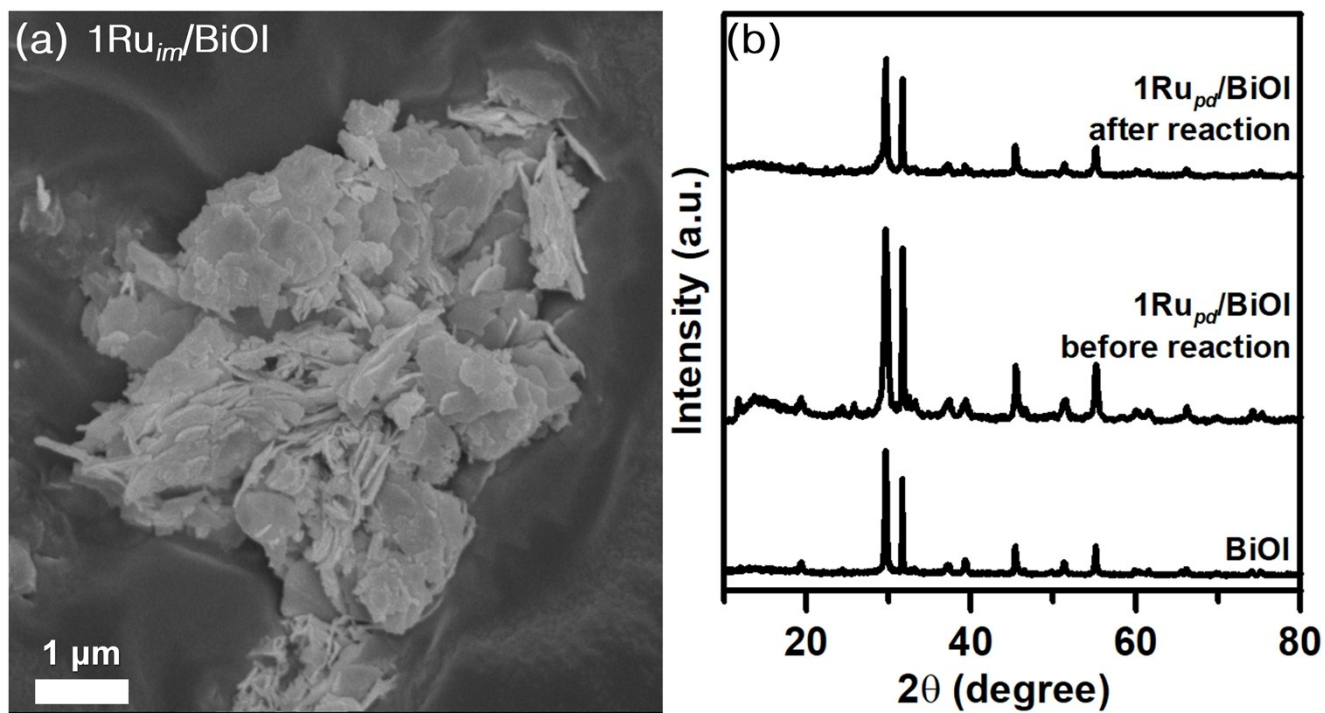


Figure S6 (a) SEM image of $1\text{Ru}_{im}/\text{BiOI}$ and (b) XRD patterns of $1\text{Ru}_{pd}/\text{BiOI}$ before and after the photocatalytic reaction.

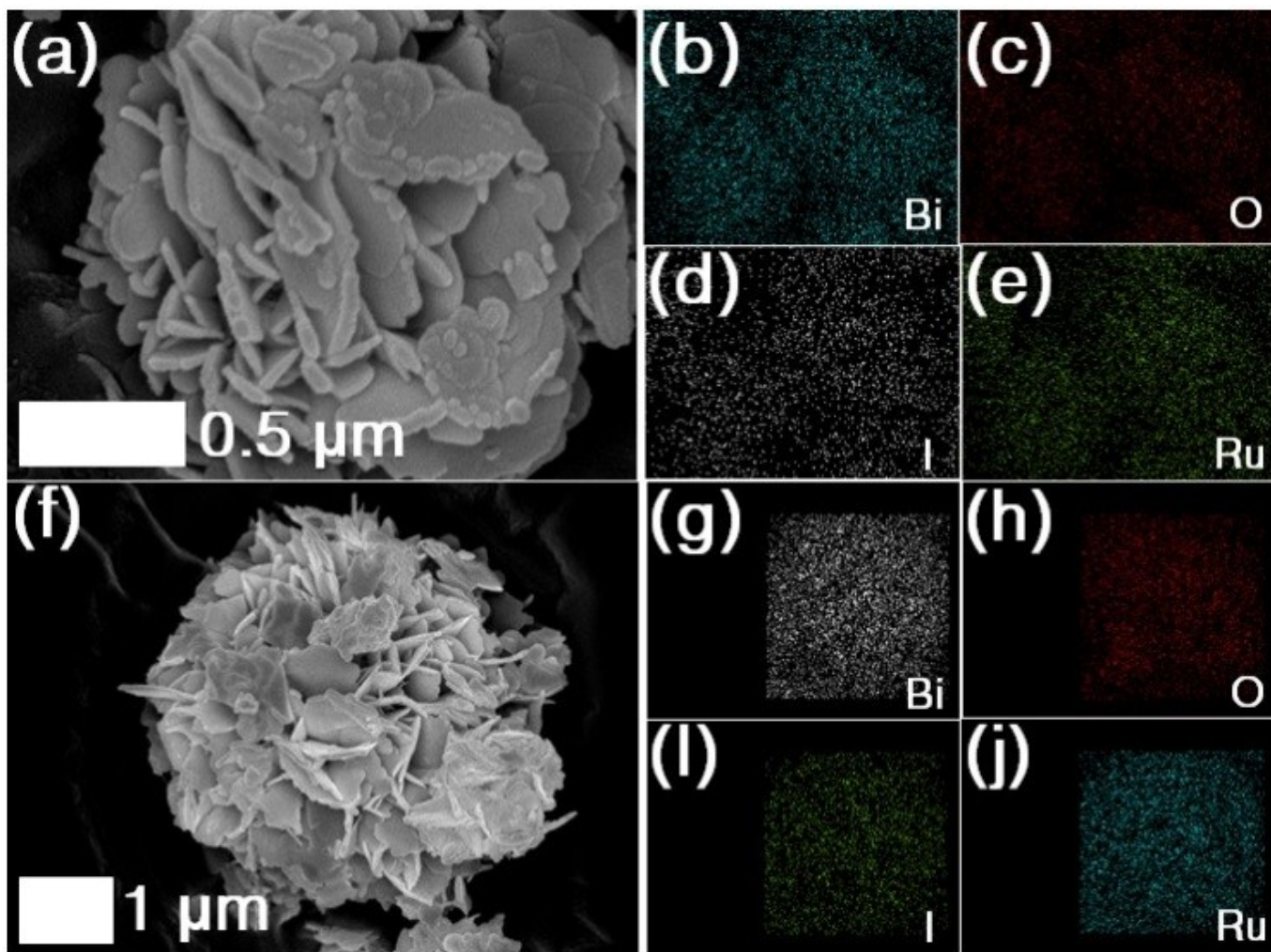


Figure S7 SEM images and the corresponding elemental mapping for Bi, O, I, and Ru elements of $1\text{Ru}_{pd}/\text{BiOI}$ samples before (a–e) and after (f–j) the photocatalytic O_2 production.

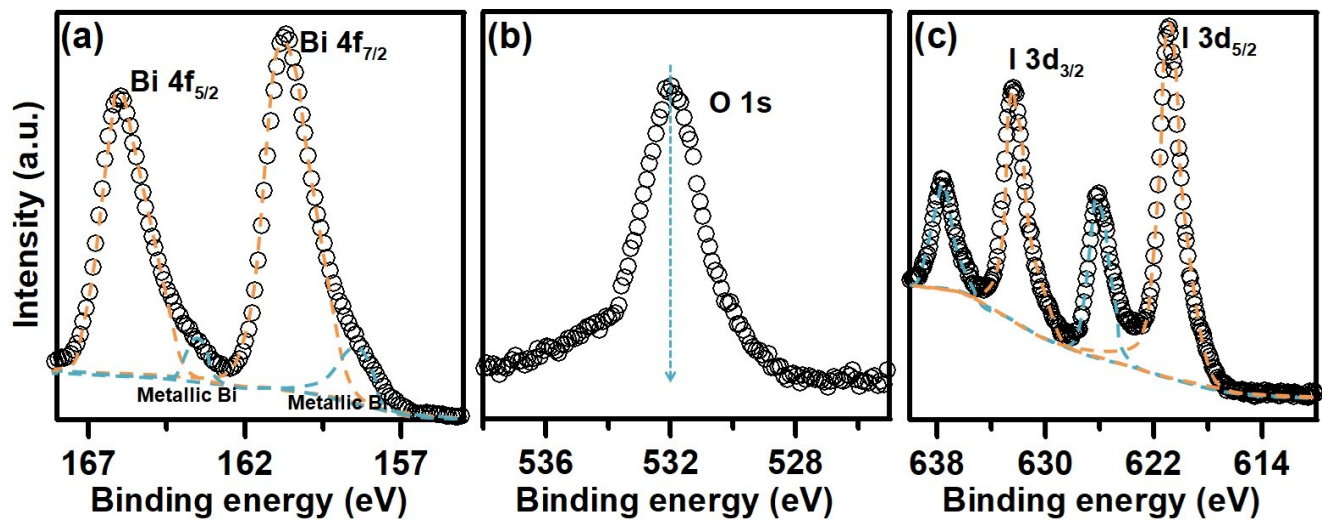


Figure S8 High-resolution XPS spectra for (a) Bi 4f, (b) O 1s, and (c) I 3d levels of the 1Ru_{pd}/BiOI samples after the photocatalytic reaction.