Supporting Information

Investigation of structural, optical and crystallographic properties upon Bi_2WO_6/Ag plasmonic hybrids and its photocatalytic, electron transfer characteristics

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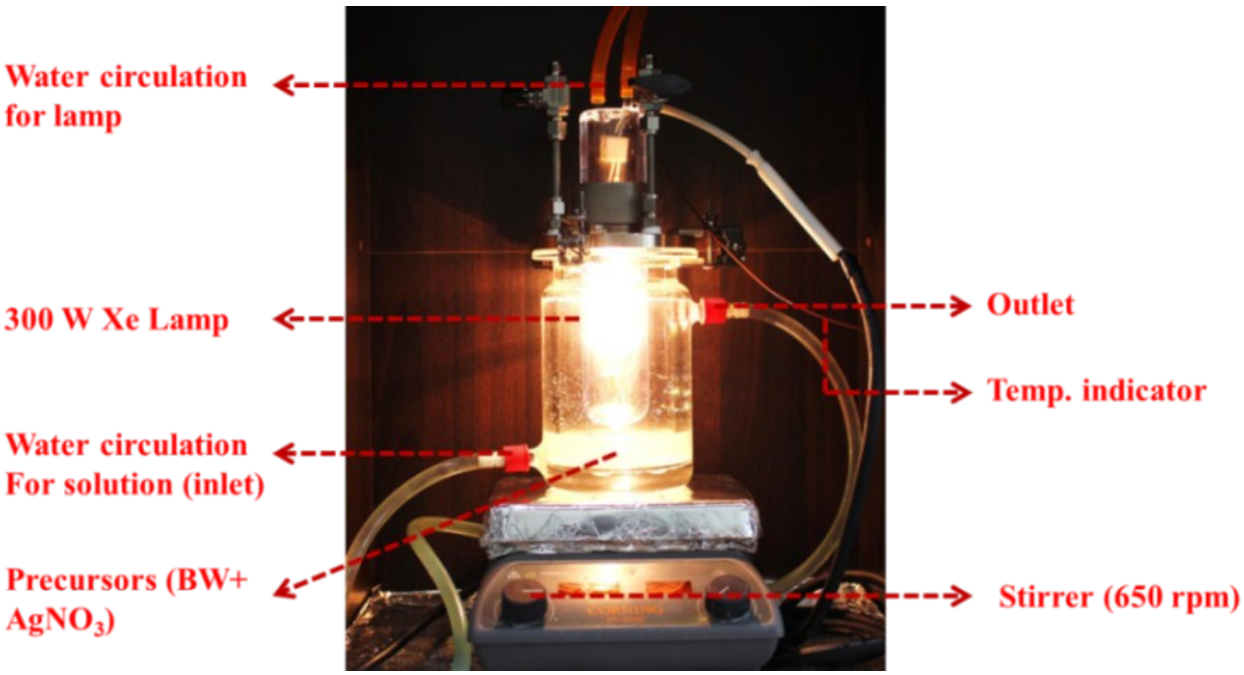

Fig. S1 Photoreduction setup for the Ag deposition on Bi_2WO_6

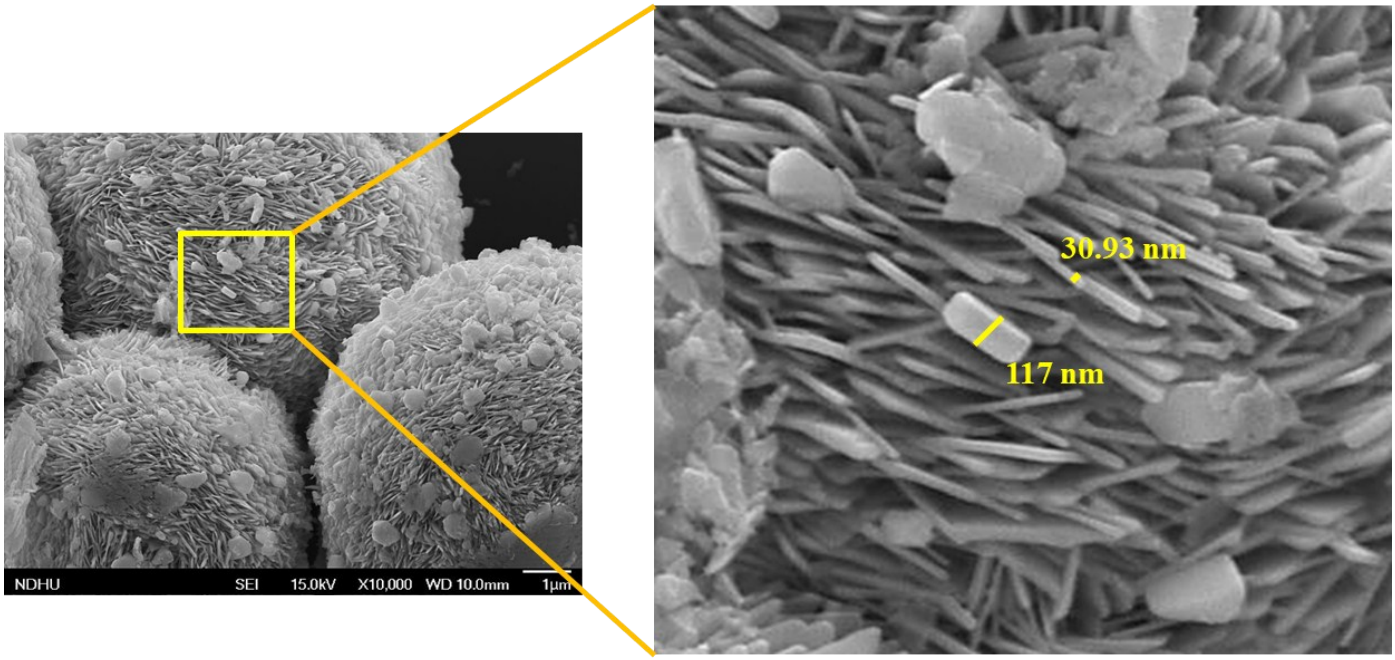

Fig. S2 FE-SEM image, enlarged view of BW-Ag photocatalyst

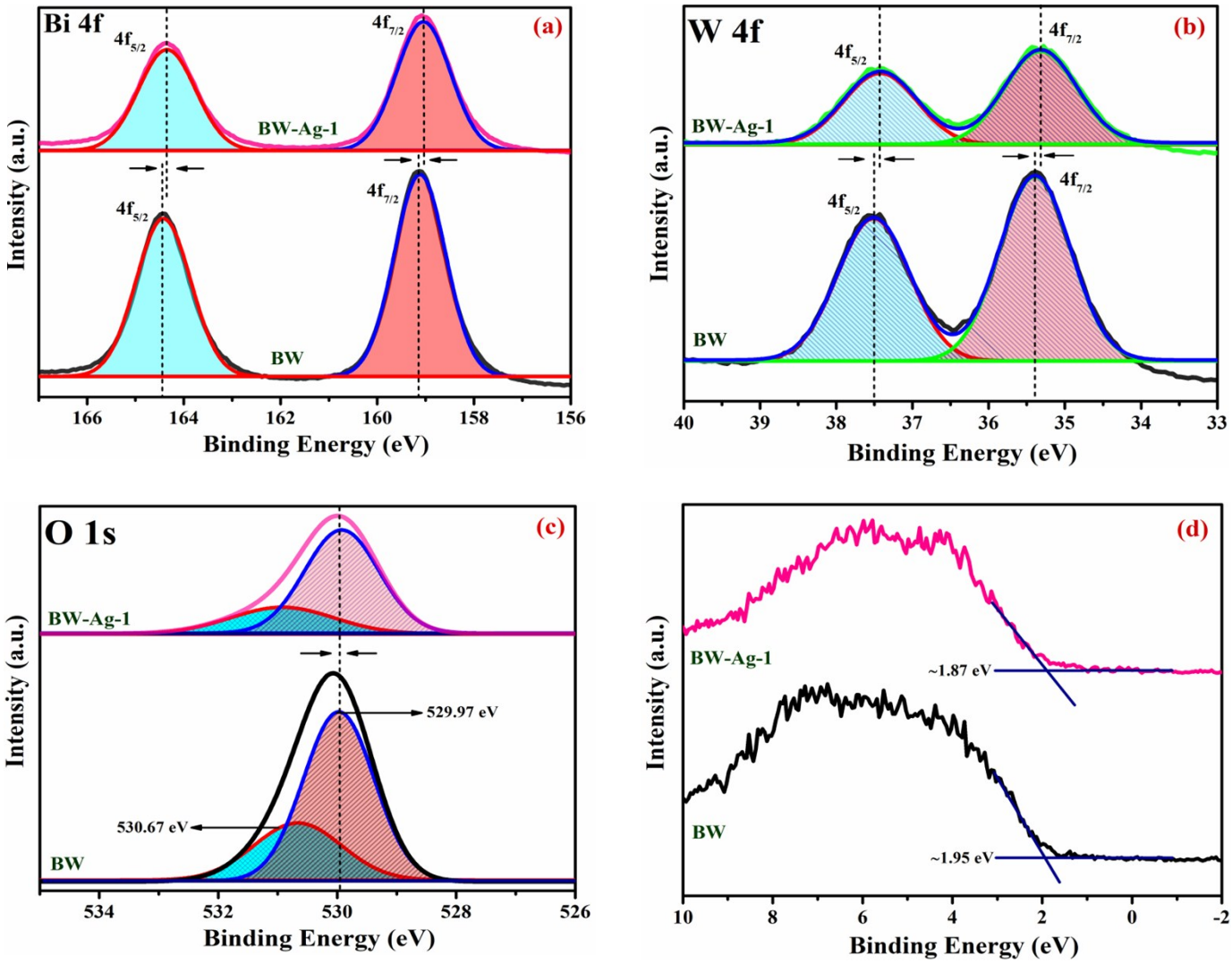

Fig. S3 XPS spectra of Bi 4f (a), W 4f (b), O 1s (c), valence band spectra (d) and relative atomic percentage (e)

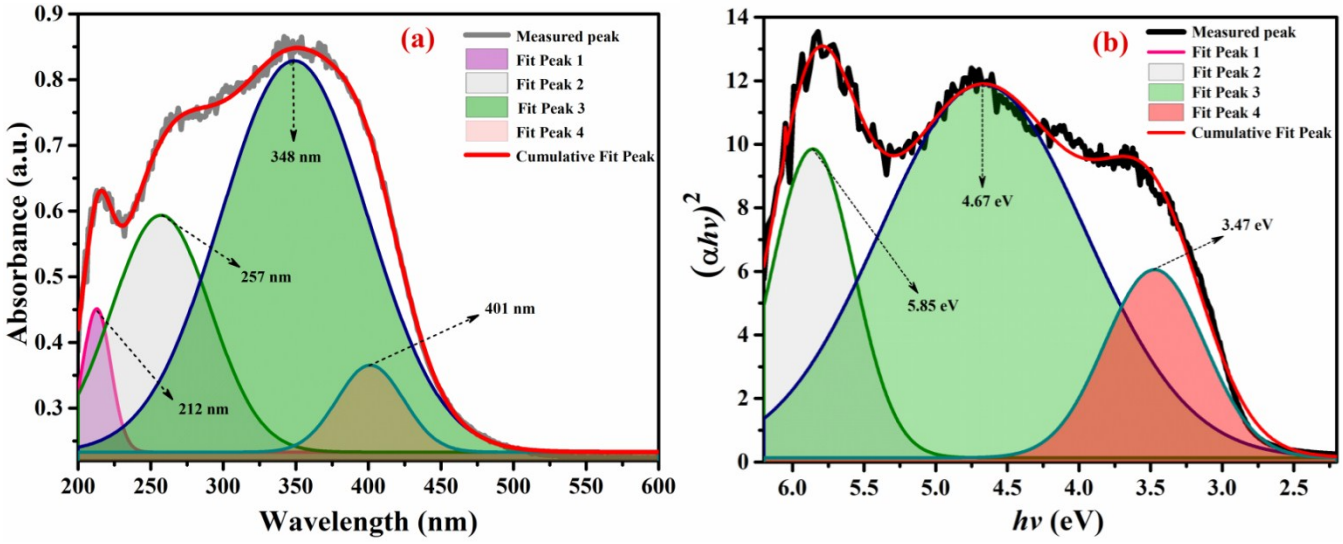

Fig. S4 Fitted graph of absorbance and Tauc plot of intrinsic BW semiconductor

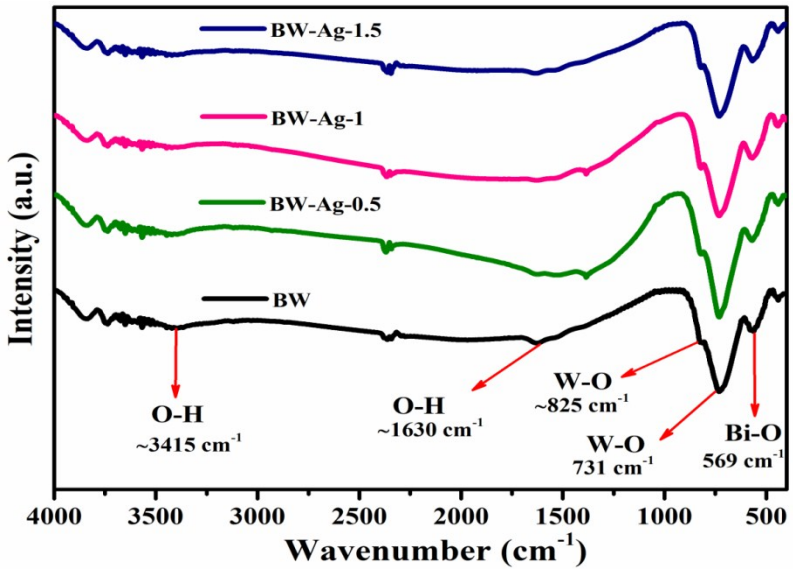

Fig. S5 FT-IR spectra of all catalysts

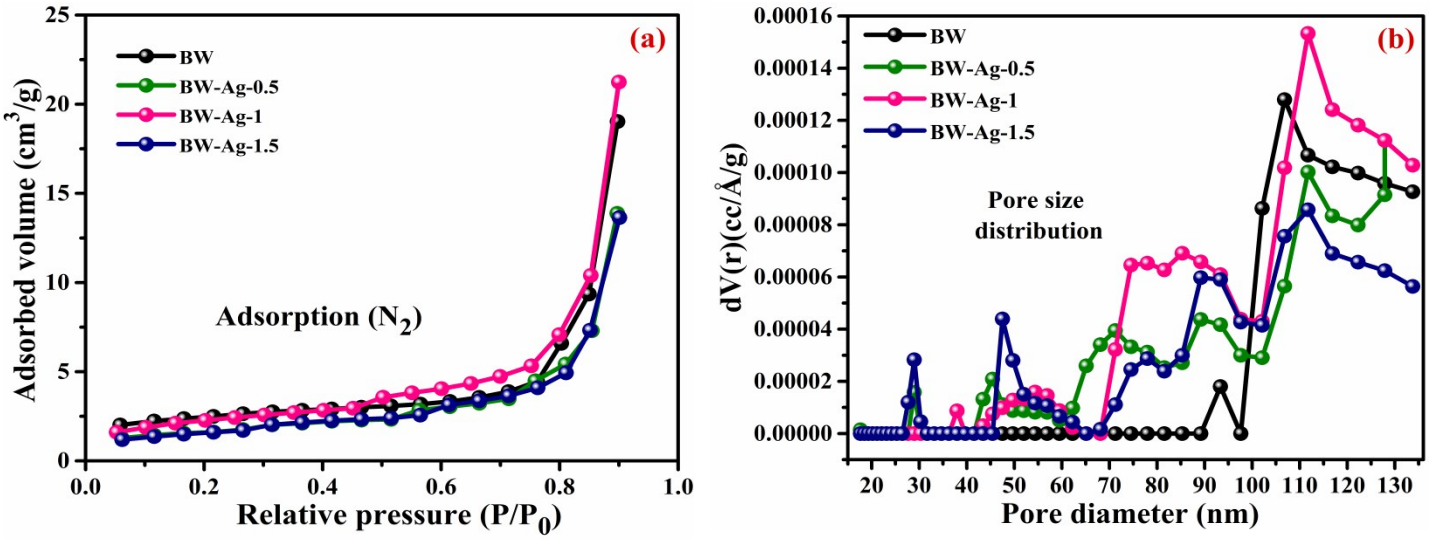

Figure S6 Surface area and Pore size distribution

Catalyst	Band gap (E_g) (eV)	Valence band (E_{VB}) (eV)	Conduction band (E_{CB}) (eV)	Surface Area (m^2/g)	Pore Volume (cc/g)
BW	2.78	0.32	3.10	6.456	0.025
BW-Ag-0.5	2.60	0.41	3.01	4.515	0.019
BW-Ag-1	2.26	0.58	2.84	6.140	0.029
BW-Ag-1.5	2.08	0.67	2.75	4.344	0.019

Table S1 Band gap, valence band, conduction band values, surface area and pore size distribution

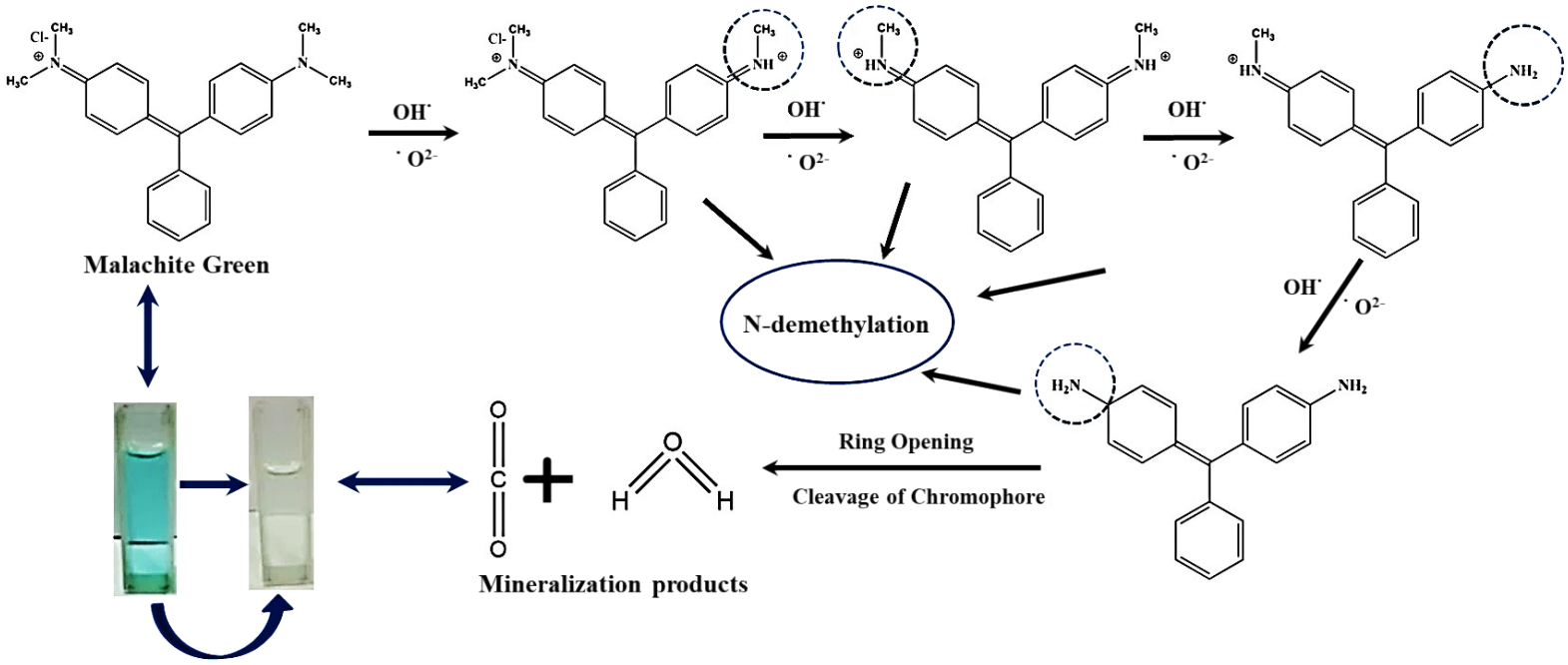

Fig. S7 Mechanism of Malachite Green dye (MG) fragmentation over the BW-Ag-1 photocatalyst under light illumination.

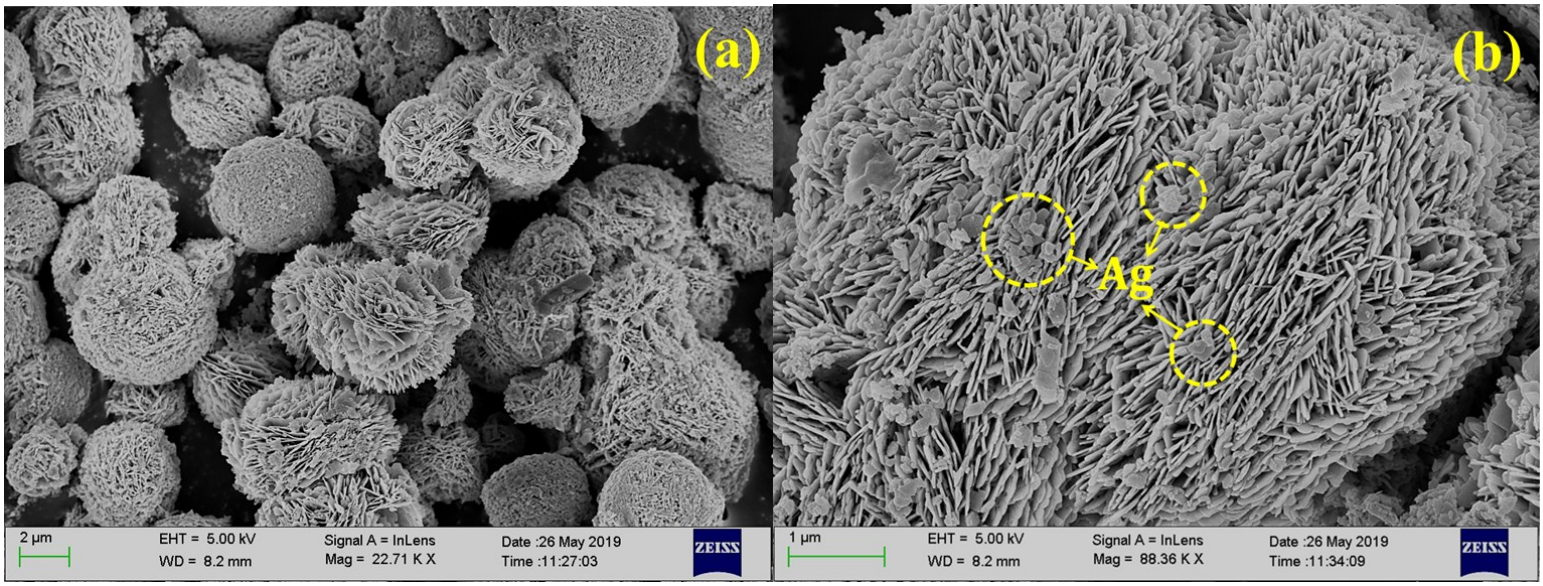

Fig. S8 a and **b** shows FE-SEM images of BW-Ag-1 catalyst after five photocatalytic reactions