

Supporting information

Controllable synthesis of nanostructured bismuth vanadate thin films as an efficient catalyst for photoelectrochemical water splitting

Arreerat Jiamprasertboon,^{a,b} Sarunya Sertwatsana,^a Lappawat Ngamwongwan,^c Weradesh Sangkhun,^d Anurak Waehayee,^{a,b} Praphaiphon Phonsuksawang,^{a,b} Atipong Bootchanont,^e Supinya Nijpanich,^f Wutthikrai Busayaporn,^f Hideki Nakajima,^f Suwit Suthirakun,^a Teera Butburee,^{*d} and Theeranun Siritanon,^{*a}

- ^a School of Chemistry, Institute of Science, Suranaree University of Technology, 111 University Avenue, Muang, Nakhon Ratchasima, 30000 (Thailand)
- ^b Institute of Research and Development, Suranaree University of Technology, 111 University Avenue, Muang, Nakhon Ratchasima, 30000 (Thailand)
- ^c School of Physics, Institute of Science, Suranaree University of Technology, 111 University Avenue, Muang, Nakhon Ratchasima, 30000 (Thailand)
- ^d Division of Physics, Faculty of Science and Technology, Rajamangala University of Technology Thanyaburi (RMUTT), Pathumthani 12110 (Thailand)
- ^e Synchrotron Light Research Institute, 111 University Avenue, Muang, Nakhon Ratchasima, 30000 (Thailand)
- ^f National Nanotechnology Center, National Science and Technology Development Agency, 111 Thailand Science Park, Pathum Thani 12120 (Thailand)

*Corresponding authors' e-mails :theeranun@sut.ac.th and teera.but@nanotec.or.th

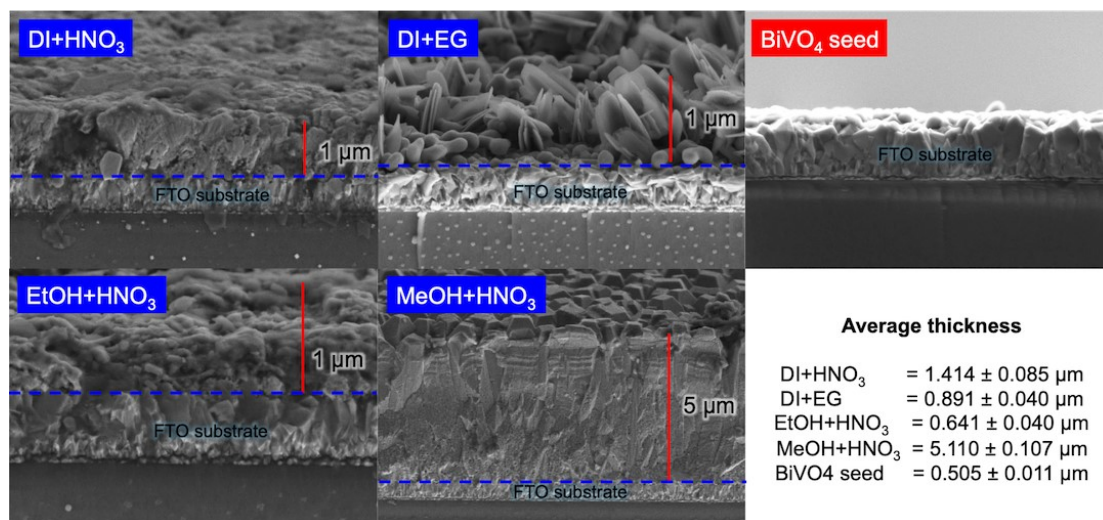


Figure S1. Cross-sectional SEM images of all prepared BiVO₄ films and BiVO₄ seed.

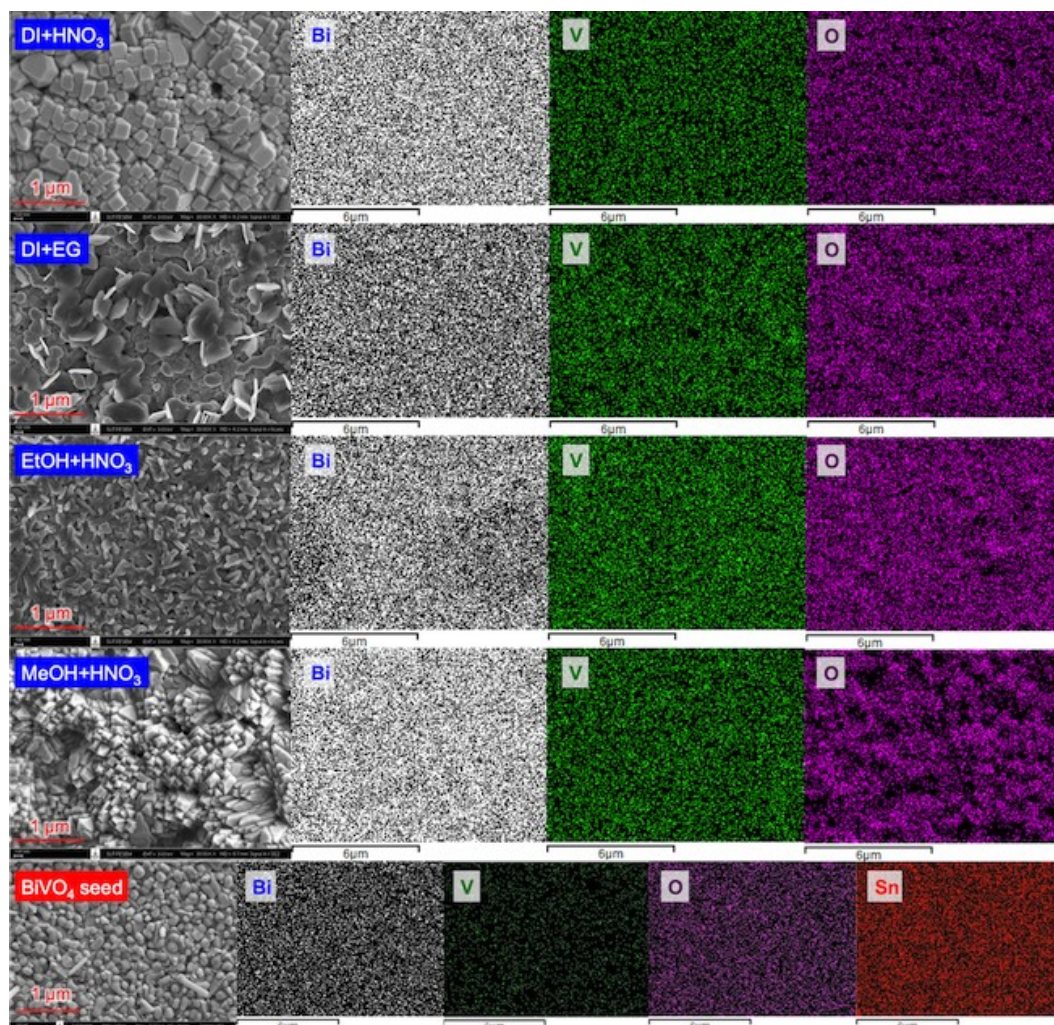


Figure S2. SEM images and EDS mappings of Bi, V and O in all BiVO₄ films prepared using different solvents and BiVO₄ seed.

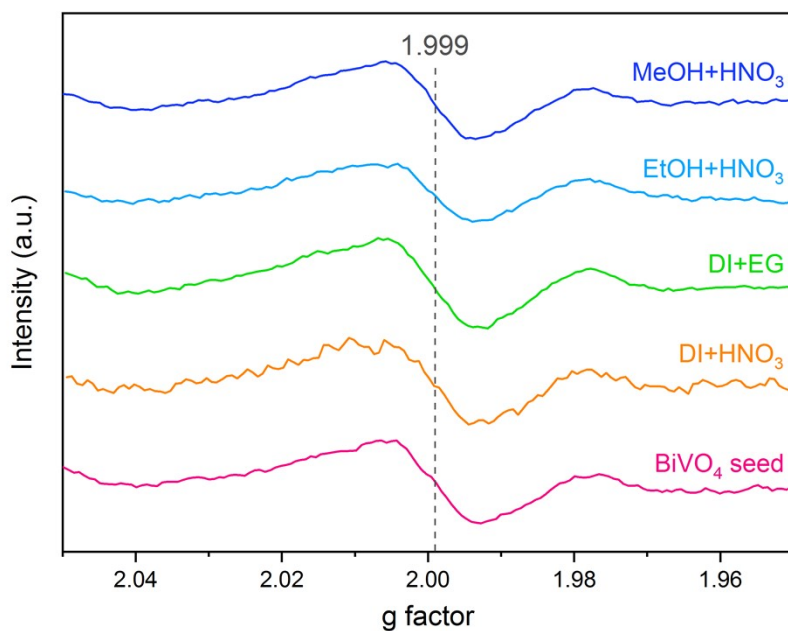


Figure S3. EPR spectra of all BiVO₄ film prepared using various solvents and BiVO₄ seed.

Table S1. Binding energies obtained from deconvolution of core-level XPS spectra of Bi 4f, V 2p and O 1s.

Samples	Binding energies (eV)								
	Bi 4f			O 1s			V 2p		
	Bi 4f _{7/2}	Bi 4f _{5/2}	Δ	O _I	O _{II}	O _{III}	V 2p _{3/2}	V 2p _{1/2}	Δ
Seed	158.67	163.97	5.30	529.36	530.69	532.21	516.40	523.79	7.39
DI+HNO ₃	158.99	164.30	5.31	529.65	532.09	-	516.56	524.05	7.49
DI+EG	159.01	164.33	5.32	529.69	530.72	532.23	516.97, 515.82	524.42, 523.37	7.45, 7.55
EtOH+ HNO ₃	159.24	164.55	5.31	530.05	531.48	-	517.18	524.50	7.32
MeOH+ HNO ₃	159.11	164.42	5.31	529.98	531.74	-	517.01	524.38	7.37