**Tungsten Disulfide Thin Film/p-type Si Heterojunction Photocathode for Efficient Photochemical Hydrogen Production**

*Supporting Information*

Ki Chang Kwon1,2,‡, Seokhoon Choi1,‡, Kootak Hong1, Dinsefa Mensur Andoshe1, Jun Min Suh1, Jeong Hyeon Oh2, Changyeon Kim1, Kyoung Soon Choi3, Soo Young Kim2,\*, Ho Won Jang1,\*

1Department of Materials Science and Engineering, Research Institute of Advanced Materials, Seoul National University, Seoul 08826, Republic of Korea

2School of Chemical Engineering and Materials Science, Chung-Ang University, Seoul 06974, Republic of Korea

3Advanced Nano Surface Research Group, Korea Basic Science Institute, Daejeon 34133, Republic of Korea.

KEYWORDS. Tungsten disulfide, photoelectrochemical hydrogen production, silicon photocathode.



**Fig. S1.** The top-view field-emission scanning electron microscopy (FE-SEM) images of as-transferred and chronoamperometry measured (for 10 hours) samples for 8-, 23-, 45-nm-thick WS2 thin films on *p*-Si. In the case of the 45-nm-thick WS2 thin film catalyst, the thin film significantly degraded after 10 hour chronoamperometry measurement.