Electronic Supplementary Information

Strategies for Enhancing Photocurrent, Photovoltage, and Stability of Photoelectrodes for Photoelectrochemical Water Splitting

Wooseok Yang,[a] Rajiv Ramanujam Prabhakar,[b] Jeiwan Tan,[a] S. David Tilley,[*b] and Jooho Moon[*a]

[a] Department of Materials Science and Engineering, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul, 03722, Republic of Korea
E–mail: jmoon@yonsei.ac.kr

[b] Department of Chemistry, University of Zurich, 8057 Zurich, Switzerland
E-mail: david.tilley@chem.uzh.ch

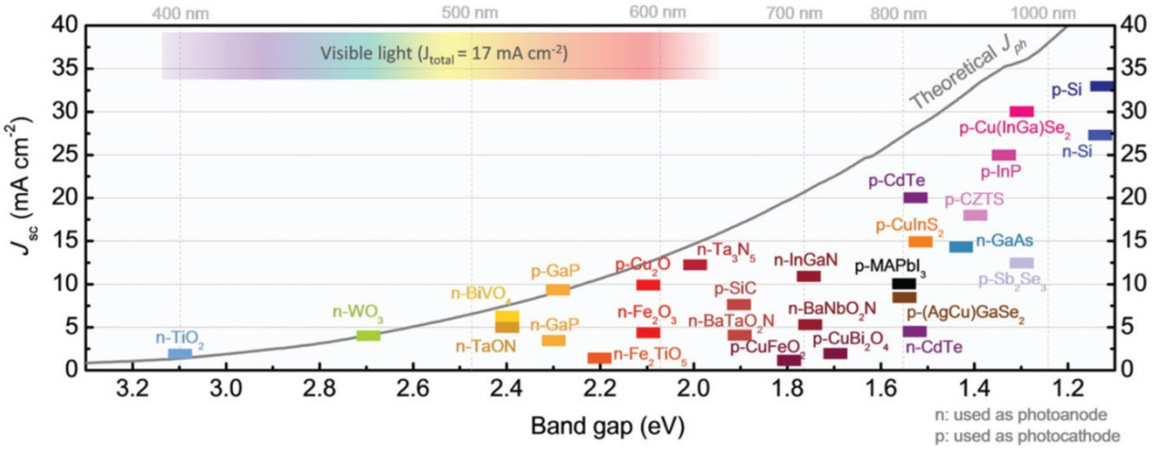

Fig S1. Reported photocurrent density under short circuit condition (*Jsc*) of photoelectrodes for PEC water splitting under standard conditions: 1.0 sun, short circuit conditions of 1.23 V_{RHE} for photoanode, and 0 V_{RHE} for photocathode. Material taken from the report made by Kim and Lee et al.[1]

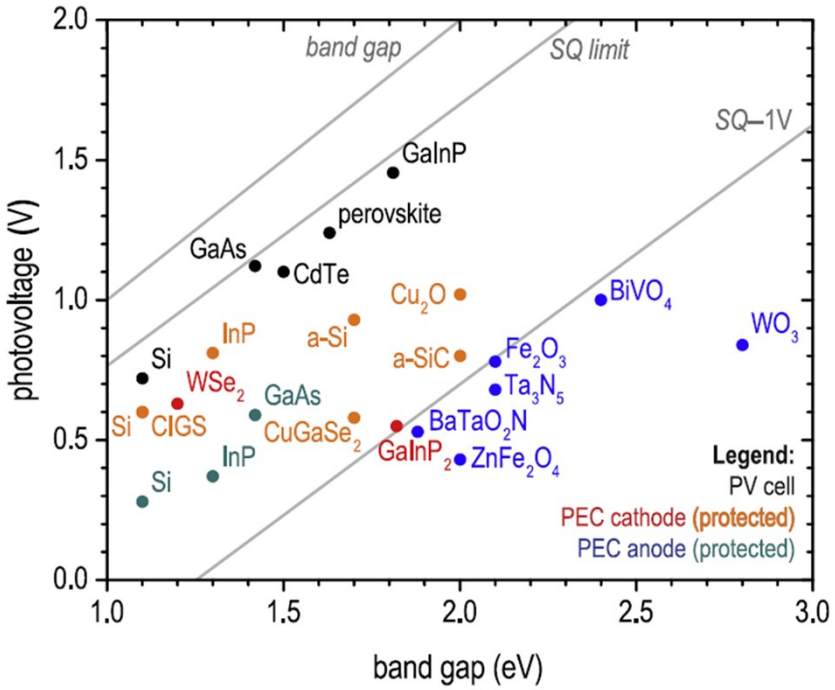

Fig S2. Photovoltage benchmarks for PEC and PV materials as functions of E_g, SQ limit, and SQ−1. Material taken from the report made by Mayer.[2]

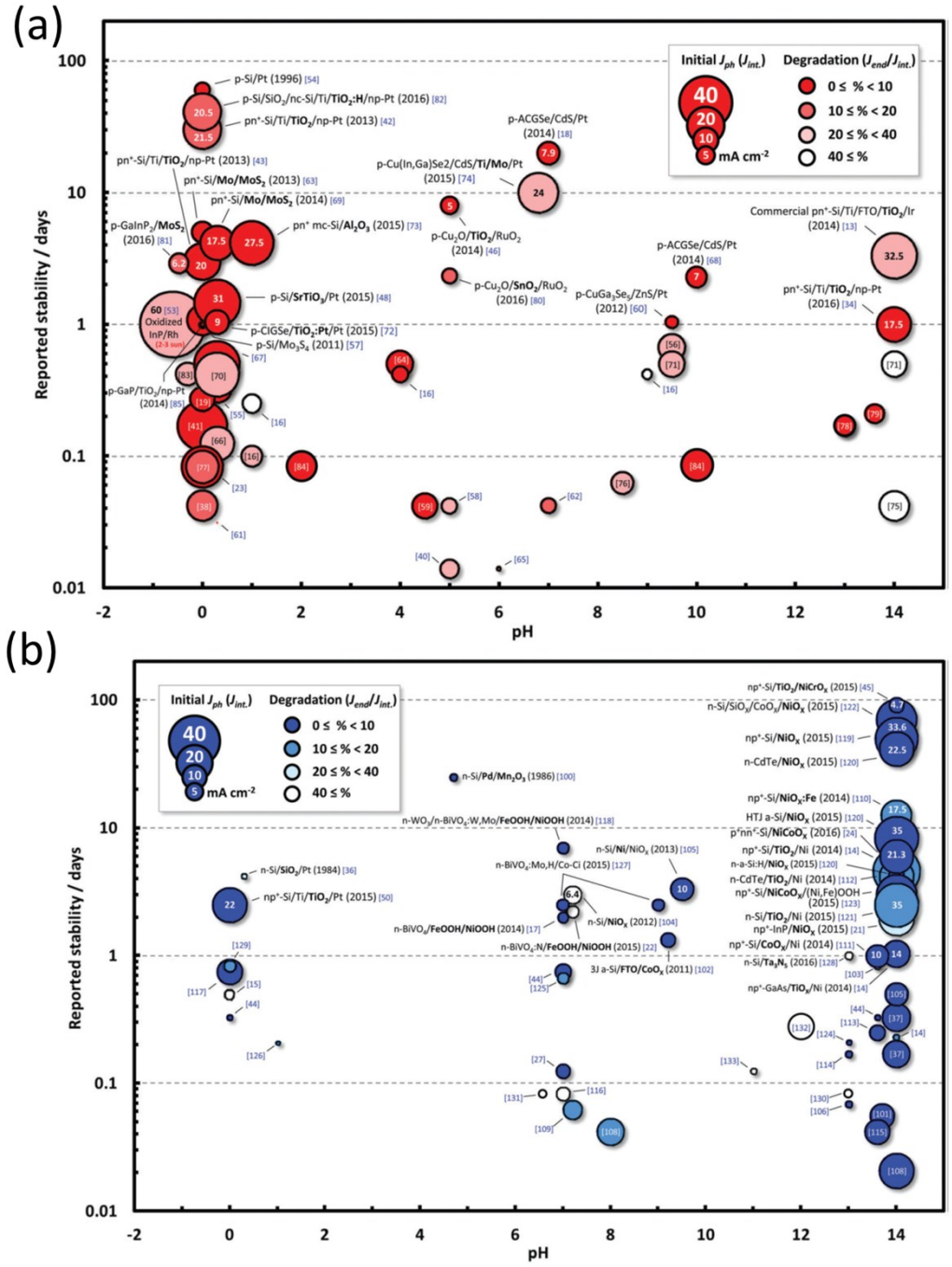

Fig S3. Charts visualizing data on reported stabilities of (a) photocathodes for the HER and (b) photoanodes for the OER, versus tested pH condition, with resulting photocurrent and degradation rate indicated. Material taken from the report made by Bae et al.[3]

References

1. J. H. Kim, D. Hansora, P. Sharma, J.-W. Jang and J. S. Lee, *Chemical Society Reviews*, 2019, **48**, 1908-1971.
2. M. T. Mayer, Current Opinion in Electrochemistry, 2017, **2**, 104-110.
3. D. Bae, B. Seger, P. C. Vesborg, O. Hansen and I. Chorkendorff, *Chemical Society Reviews*, 2017, **46**, 1933-1954.