List of publications

This thesis is based on the following publications

- *Photovoltaics reaching for the Shockley–Queisser limit*, B. Ehrler, E. Alarcón Lladó, **S. W. Tabernig**, T. Veeken, E. C. Garnett, and A. Polman, ACS Energy Lett. **5**, 3029 (2020). (**Chapter 1**)

- *Optically resonant bulk heterojunction PbS quantum dot solar cell*, **S. W. Tabernig**, L. Yuan, A. Cordaro, Z. Teh, Y. Gao, R. Patterson, A. Pusch, S. Huang, and A. Polman, ACS Nano **16**, 13750 (2022). (**Chapter 2**)

- *Avoiding shading losses in concentrator photovoltaics using a soft-imprinted cloaking geometry*, **S. W. Tabernig**, A. H. Soeriyadi, U. Römer, A. Pusch, D. Lamers, M. K. Juhl, D. N. R. Payne, M. P. Nielsen, A. Polman, and N. J. Ekins-Daukes, IEEE J. Photovolt. **12**, 1-12 (2022). (**Chapter 3**)

- *Nanopatterned Si and SiN_x structures for improved incoupling and lighttrapping in thin-film Si solar cells* , **S. W. Tabernig***, A. Cordaro*, A. Lambertz*, M. Pollard, C. Yi, E. Alarcón Lladó, B. Hoex, and A. Polman, in preparation. (**Chapter 4**)

- *Detailed-balance efficiency limits of two-terminal perovskite/silicon tandem solar cells with planar and Lambertian spectral splitters*, V. Neder, **S. W. Tabernig**, and A. Polman, J. Photonics Energy **12**, 015502 (2022). (**Chapter 5**)

- *Zn_3P_2-TiO_2 heterojunction-based thin-film solar cell device design*, **S. W. Tabernig**, M. Dimitrievska, A. Polman, A. Fontcuberta i Morral, in preparation. (**Chapter 6**)

- *Beyond light trapping benefits: the effect of SiO_2 nanoparticles in bifacial semi-transparent ultrathin CIGSe solar cells*, Y. Li, **S. W. Tabernig**, G. Yin, A. Polman, M. Schmid, Sol. RRL **6**, 2200695 (2022). (**Chapter 7**)

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Other publications by the author

- *Nano-patterned back-reflector for enhanced light management in III–V-on-silicon solar cells*, A. Cordaro, R. Müller, **S. W. Tabernig**, N. Tucher, H. Hauser, O. Höhn, B. Bläsi, and A. Polman, (in preparation).

- *Plasmonic indium lattices fabricated via electrochemical depositio*, M. D. Wobben, M. Valenti, Y. Bleiji, A. Cordaro, **S. W. Tabernig**, M. Aarts, R. D. Buijs, S. R. K. Rodriguez, A. Polman, and E. Alarcón Lladó, (in preparation).

- *Bottom-up filling of nanosized trenches with silver and copper to fabricate transparent conducting electrodes*, Y. Bleiji, M. Dieperink, A. Cordaro, **S. W. Tabernig**, A. Polman, and E. Alarcón Lladó, (in preparation).

- *A method to detect triplet exciton transfer from singlet fission materials into silicon solar cells: Comparing different surface treatments*, B. Daiber, S. P. Pujari, S. Verboom, S. L. Luxembourg, **S. W. Tabernig**, M. H. Futscher, J. Lee, H. Zuilhof, and B. Ehrler, Chem. Phys. **152**, 114201 (2020).

- *Enhancing silicon solar cells with singlet fission: the case for Förster resonant energy transfer using a quantum dot intermediate*, **S. W. Tabernig**, B. Daiber, T. Wang, and B. Ehrler, J. Photonics Energy **8**, 022008 (2018).

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- *Breaking the shackles of the shading/resistance loss trade-off in concentrator solar cells: effectively transparent contacts for elimination of shading losses*, **S. W. Tabernig**, A. H. Soeriyadi, U. Römer, A. Pusch, D. Lamers, M. K. Juhl, D. N. R. Payne, M. P. Nielsen, A. Polman, and N. J. Ekins-Daukes, Photonics for Solar Energy Systems IX, PC121500D (2022).

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- *Near-infrared bandgap Cd-rich $Pb_xCd_{1-x}S$ quantum dot with record long exciton lifetime*, Z. Teh, R. J. Patterson, **S. W. Tabernig**, A. Sharma, and S. Huang, 2021 IEEE 48$^{\text{th}}$ Photovoltaic Specialists Conference (PVSC), 2475 (2021).

- *Carrier collection in optically resonant nanostructures for quantum dot solar cells*, **S. W. Tabernig**, L. Yuan, Y. Gao, Z. Teh, A. Cordaro, A. Pusch, R. Patterson, S. Huang, and A. Polman, 2021 IEEE 48$^{\text{th}}$ Photovoltaic Specialists Conference (PVSC), 0803 (2021).

- *Plasmonic and Mie scattering in nanopatterned back reflectors for III–V-on-silicon solar cells*, A. Cordaro, N. Tucher, **S. W. Tabernig**, H. Hauser, O. Hoehn, R. Müller, B. Bläsi, and A. Polman, Proc. SPIE 11366 Photonics for Solar Energy Systems VIII, 1136607 (2020).

- *Light management for absorption enhancement in PbS quantum dot solar cells*, **S. W. Tabernig**, Z. Li Teh, A. Cordaro, R. Patterson, G. Conibeer, S. Huang, and A. Polman, Proceedings of the Asia Pacific Solar Research Conference, ISBN: 978-0-6480414-3-6 (2019).