

**PEER-REVIEWED PUBLICATIONS**

- Ordered reverse chronologically by year
- Papers on which I am **corresponding author** are denoted by **underline**
- Author profile links: [Google Scholar](#), [Scopus](#), [Orcid](#), [ResearcherID](#)

<b>Summary</b>	First author 4	Corresponding author 5	Citations >5600	<i>h</i> -index 32-33
1. Abouserie, A., El-Nagar, G. A., Heyne, B., Günter, C., Schilde, U., <b>Mayer, M. T.</b> , ... & Taubert, A. Facile Synthesis of Hierarchical CuS and CuCo <sub>2</sub> S <sub>4</sub> Structures from an Ionic Liquid Precursor for Electrocatalysis Applications. <i>ACS Applied Materials &amp; Interfaces</i> , 12(47), 52560-52570 (2020).				
2. Mesa, C. A.; Francàs, L.; Yang, K.; Garrido, P.; Pastor, E.; Ma, Y.; Kafizas, A.; Rosser, T.E.; <b>Mayer, M. T.</b> ; Reisner, E.; Grätzel, M.; Batista, V.S.; Durrant, J.R. Multihole water oxidation catalysis on hematite photoanodes revealed by operando spectroelectrochemistry and DFT. <i>Nature Chemistry</i> 12, 82-89 (2020).				
3. Cendula, P.; <b>Mayer, M. T.</b> ; Luo, J.; Grätzel, M. Elucidation of photovoltage origin and charge transport in Cu <sub>2</sub> O heterojunctions for solar energy conversion. <i>Sustainable Energy &amp; Fuels</i> 3, 2633-2641 (2019).				
4. Pan, L.; Kim, J. H.; <b>Mayer, M. T.</b> ; Son, M.-K.; Ummadisingu, A.; Lee, J. S.; Hagfeldt, A.; Luo, J.; Grätzel, M. Boosting the Performance of Cu <sub>2</sub> O Photocathodes for Unassisted Solar Water Splitting Devices. <i>Nature Catalysis</i> 1, 412-420 (2018).				
5. Halvani Anaraki, E.; Kermanpur, A.; <b>Mayer, M. T.</b> ; Steier, L.; Ahmed, T.; Turren-Cruz, S.-H.; Seo, J.; Luo, J.; Zakeeruddin, S. M.; Tress, W. R.; Edvinsson, T.; Grätzel, M.; Hagfeldt, A.; Correa-Baena, J.-P. Low-Temperature Nb-Doped SnO <sub>2</sub> Electron-Selective Contact Yields over 20% Efficiency in Planar Perovskite Solar Cells. <i>ACS Energy Lett.</i> 3 (4), 773-778 (2018).				
6. Turren-Cruz, S.-H.; Saliba, M.; <b>Mayer, M. T.</b> ; Juárez-Santiesteban, H.; Mathew, X.; Nienhaus, L.; Tress, W.; Erodici, M. P.; Sher, M.-J.; Bawendi, M. G.; Grätzel, M.; Abate, A.; Hagfeldt, A.; Correa-Baena, J.-P. Enhanced Charge Carrier Mobility and Lifetime Suppress Hysteresis and Improve Efficiency in Planar Perovskite Solar Cells. <i>Energy Environ. Sci.</i> 11 (1), 78-86 (2018).				
7. Yu, Y.-X.; Pan, L.; Son, M.-K.; <b>Mayer, M. T.</b> ; Zhang, W.-D.; Hagfeldt, A.; Luo, J.; Grätzel, M. Solution-Processed Cu <sub>2</sub> S Photocathodes for Photoelectrochemical Water Splitting. <i>ACS Energy Lett.</i> 3 (4), 760-766 (2018).				
8. Mesa, C. A.; Kafizas, A.; Francàs, L.; Pendlebury, S. R.; Pastor, E.; Ma, Y.; Le Formal, F.; <b>Mayer, M. T.</b> ; Grätzel, M.; Durrant, J. R. Kinetics of photoelectrochemical oxidation of methanol on hematite photoanodes. <i>J. Am. Chem. Soc.</i> 139 (33), 11537-11543 (2017).				
9. Steier, L.; Bellani, S.; Rojas, H. C.; Pan, L.; Laitinen, M.; Sajavaara, T.; Di Fonzo, F.; Grätzel, M.; Antognazza, M. R.; <b>Mayer, M. T.</b> Stabilizing organic photocathodes by low-temperature atomic layer deposition of TiO <sub>2</sub> . <i>Sustain. Energy Fuels</i> 1, 1915-1920 (2017). ** 2017 Sustainable Energy and Fuels HOT Articles				
10. Rojas, H. C.; Bellani, S.; Sarduy, E. A.; Fumagalli, F.; <b>Mayer, M. T.</b> ; Schreier, M.; Grätzel, M.; Di Fonzo, F.; Antognazza, M. R. All Solution-Processed, Hybrid Organic-Inorganic Photocathode for Hydrogen Evolution. <i>ACS Omega</i> 2 (7), 3424-3431 (2017).				
11. <b>Mayer, M. T.</b> Photovoltage at semiconductor-electrolyte junctions. <i>Curr. Opin. Electrochem.</i> 2, 104-110 (2017).				
12. Schreier, M.; Heroguel, F.; Steier, L.; Ahmad, S.; Luterbacher, J. S.; <b>Mayer, M. T.</b> , Luo, J. & Grätzel, M. Solar conversion of CO <sub>2</sub> to CO with Earth-abundant electrocatalysts prepared by atomic layer modification of CuO. <i>Nature Energy</i> 2, 17087 (2017).				
13. Pastor, E., Le Formal, F., <b>Mayer, M. T.</b> , Tilley, S. D., Francàs, L., Mesa, C. A., Grätzel, M. & Durrant, J. R. Spectro-electrochemical analysis of the mechanism of (photo)electrochemical hydrogen evolution at a catalytic interface. <i>Nat. Commun.</i> 8, 14280 (2017).				
14. Son, M.-K., Steier, L., Schreier, M., <b>Mayer, M. T.</b> , Luo, J. & Grätzel, M. A copper nickel mixed oxide hole selective layer for Au-free transparent cuprous oxide photocathodes. <i>Energy Environ. Sci.</i> 10, 912-918 (2017).				
15. Stern, L.-A., Liardet, L., <b>Mayer, M. T.</b> , Morales-Guio, C. G., Grätzel, M. & Hu, X. Photoelectrochemical deposition of CoP on cuprous oxide photocathodes for solar hydrogen production. <i>Electrochim. Acta</i> 235, 311-316 (2017).				

16. Azevedo, J., Tilley, S. D., Schreier, M., Stefik, M., Sousa, C., Araújo, J. P., Mendes, A., Grätzel, M. & **Mayer, M. T.** Tin oxide as stable protective layer for composite cuprous oxide water-splitting photocathodes. *Nano Energy* 24, 10–16 (2016).
17. Schreier, M., Luo, J., Gao, P., Moehl, T., **Mayer, M. T.** & Grätzel, M. Covalent Immobilization of a Molecular Catalyst on Cu<sub>2</sub>O Photocathodes for CO<sub>2</sub> Reduction. *J. Am. Chem. Soc.* 138, 1938–1946 (2016).
18. Rojas, H. C., Bellani, S., Fumagalli, F., Tullii, G., Leonardi, S., **Mayer, M. T.**, Schreier, M., Grätzel, M., Lanzani, G., Di Fonzo, F., Antognazza, M. R. Polymer-based photocathodes with a solution-processable cuprous iodide anode layer and a polyethyleneimine protective coating. *Energy Environ. Sci.* 9, 3710–3726 (2016).
19. Segev, G., Dotan, H., Malviya, K. D., Kay, A., **Mayer, M. T.**, Grätzel, M. & Rothschild, A. High Solar Flux Concentration Water Splitting with Hematite ( $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>) Photoanodes. *Adv. Energy Mater.* 6, 201500817 (2016).
20. Luo, J., Steier, L., Son, M.-K., Schreier, M., **Mayer, M. T.** & Grätzel, M. Cu<sub>2</sub>O Nanowire Photocathodes for Efficient and Durable Solar Water Splitting. *Nano Lett.* 16, 1848–1857 (2016).
21. Fumagalli, F., Bellani, S., Schreier, M., Leonardi, S., Rojas, H. C., Ghadirzadeh, A., Tullii, G., Savoini, A., Marra, G., Meda, L., Grätzel, M., Lanzani, G., **Mayer, M. T.**, Antognazza, M. R. & Di Fonzo, F. Hybrid organic–inorganic H<sub>2</sub>-evolving photocathodes: understanding the route towards high performance organic photoelectrochemical water splitting. *J. Mater. Chem. A* 4, 2178–2187 (2016).
22. Dias, P., Schreier, M., Tilley, S. D., Luo, J., Azevedo, J., Andrade, L., Bi, D., Hagfeldt, A., Mendes, A., Grätzel, M. & **Mayer, M. T.** Transparent cuprous oxide photocathode enabling a stacked tandem cell for unbiased water splitting. *Adv. Energy Mater.* 5, 201501537 (2015).
23. Steier, L., Luo, J., Schreier, M., **Mayer, M. T.**, Sajavaara, T. & Grätzel, M. Low-Temperature Atomic Layer Deposition of Crystalline and Photoactive Ultrathin Hematite Films for Solar Water Splitting. *ACS Nano* 9, 11775–11783 (2015).
24. Schreier, M., Gao, P., **Mayer, M. T.**, Luo, J., Moehl, T., Nazeeruddin, M. K., Tilley, S. D. & Grätzel, M. Efficient and selective carbon dioxide reduction on low cost protected Cu<sub>2</sub>O photocathodes using a molecular catalyst. *Energy Environ. Sci.* 8, 855–861 (2015).
25. Schreier, M., Curvat, L., Giordano, F., Steier, L., Abate, A., Zakeeruddin, S. M., Luo, J., **Mayer, M. T.** & Grätzel, M. Efficient photosynthesis of carbon monoxide from CO<sub>2</sub> using perovskite photovoltaics. *Nat. Commun.* 6, 7326 (2015).
26. Morales-Guio, C. G., **Mayer, M. T.**, Yella, A., Tilley, S. D., Grätzel, M. & Hu, X. An optically transparent iron nickel oxide catalyst for solar water splitting. *J. Am. Chem. Soc.* 137, 9927–9936 (2015).
27. Luo, J., Tilley, S. D., Steier, L., Schreier, M., **Mayer, M. T.**, Fan, H. J. & Grätzel, M. Solution transformation of Cu<sub>2</sub>O into CuInS<sub>2</sub> for solar water splitting. *Nano Lett.* 15, 1395–1402 (2015).
28. Luo, J., Li, Z., Nishiwaki, S., Schreier, M., **Mayer, M. T.**, Cendula, P., Lee, Y. H., Fu, K., Cao, A., Nazeeruddin, M. K., Romanyuk, Y. E., Buecheler, S., Tilley, S. D., Wong, L. H., Tiwari, A. N. & Grätzel, M. Targeting ideal dual-absorber tandem water splitting using perovskite photovoltaics and CuIn<sub>x</sub>Ga<sub>1-x</sub>Se<sub>2</sub> photocathodes. *Adv. Energy Mater.* 5, 201501520 (2015).
29. Morales-Guio, C. G., Liardet, L., **Mayer, M. T.**, Tilley, S. D., Grätzel, M. & Hu, X. Photoelectrochemical Hydrogen Production in Alkaline Solutions Using Cu<sub>2</sub>O Coated with Earth-Abundant Hydrogen Evolution Catalysts. *Angew. Chem. Int. Ed.* 54, 664–667 (2014).
30. Luo, J., Im, J.-H., **Mayer, M. T.**, Schreier, M., Nazeeruddin, M. K., Park, N.-G., Tilley, S. D., Fan, H. J. & Grätzel, M. Water photolysis at 12.3% efficiency via perovskite photovoltaics and Earth-abundant catalysts. *Science* 345, 1593–1596 (2014).
31. Chandiran, A. K., Yella, A., **Mayer, M. T.**, Gao, P., Nazeeruddin, M. K. & Grätzel, M. Sub-nanometer conformal TiO<sub>2</sub> blocking layer for high efficiency solid-state perovskite absorber solar cells. *Adv. Mater.* 26, 4309–4312 (2014).
32. **Mayer, M. T.**, Lin, Y., Yuan, G. & Wang, D. Forming heterojunctions at the nanoscale for improved photoelectrochemical water splitting by semiconductor materials: case studies on hematite. *Acc. Chem. Res.* 46, 1558–66 (2013).

33. Du, C., Yang, X., Mayer, M. T., Hoyt, H., Xie, J., McMahon, G., Bischofing, G. & Wang, D. Hematite-based water splitting with low turn-on voltages. *Angew. Chem. Int. Ed.* 52, 12692–5 (2013).
34. Dai, P., Xie, J., Mayer, M. T., Yang, X., Zhan, J. & Wang, D. Solar hydrogen generation by silicon nanowires modified with platinum nanoparticle catalysts by atomic layer deposition. *Angew. Chem. Int. Ed.* 52, 11119–23 (2013).
35. Mayer, M. T., Du, C. & Wang, D. Hematite/Si Nanowire Dual-Absorber System for Photoelectrochemical Water Splitting at Low Applied Potentials. *J. Am. Chem. Soc.* 134, 12406–12409 (2012). \*\* Featured in *JACS Spotlights*, doi: 10.1021/ja3076956
36. Lin, Y., Xu, Y., Mayer, M. T., Simpson, Z. I., McMahon, G., Zhou, S. & Wang, D. Growth of p-type hematite by atomic layer deposition and its utilization for improved solar water splitting. *J. Am. Chem. Soc.* 134, 5508–11 (2012).
37. Mayer, M. T., Simpson, Z. I., Zhou, S. & Wang, D. Ionic-Diffusion-Driven, Low-Temperature, Solid-State Reactions Observed on Copper Sulfide Nanowires. *Chem. Mater.* 23, 5045–5051 (2011).
38. Liu, X., Mayer, M. T. & Wang, D. Negative differential resistance and resistive switching behaviors in Cu<sub>2</sub>S nanowire devices. *Appl. Phys. Lett.* 96, 223103 (2010).
39. Liu, X., Mayer, M. T. & Wang, D. Understanding Ionic Vacancy Diffusion Growth of Cuprous Sulfide Nanowires. *Angew. Chem. Int. Ed.* 49, 3165–3168 (2010).

## RESEARCH PRESENTATIONS (reverse chronological)

### Invited talks

- 72<sup>nd</sup> International Society of Electrochemistry annual meeting, Jeju, Korea, Aug. 2021
- 23<sup>rd</sup> International Conference on Photochemical Storage and Conversion of Solar Energy, Switzerland, Aug. 2021
- CIMTEC 2021, 9<sup>th</sup> Forum on New Materials, Symposium FJ, Montecatini Terme, Italy, June 2021.
- PRiME 2020, online, Oct. 2020.
- nanoGe Online Meetup Conferences, “CO2cat”, online, June 2020
- Energy Storage Solutions workshop, SunStorage project, University of Porto, Portugal, Sept. 2019.
- North East Centre for Energy Materials (NECEM) seminar, Newcastle University, July 2019.
- 233<sup>rd</sup> Electrochemical Society Meeting, Symposium I05, Seattle, WA, May 2018.
- Freie Universität Berlin Physical Chemistry & Theoretical Chemistry seminar series, Berlin, Oct. 2017.
- Helmholtz-Zentrum Berlin EE-IS/PVcomB/EM-ISPEK seminar, Berlin, Oct. 2017.
- *Declined due to distance*: MCARE 2019, Materials Challenges in Alt. and Renew. Energy, Jeju, Korea, August 2019.
- *Declined due to distance*: 70<sup>th</sup> Annual Meeting, International Society of Electrochemistry, Durban, SA, August 2019.

### Contributed talks & posters

- Poster, Gordon Research Conference “Solar Fuels”, Italy, 2020. (cancelled, covid19)
- Poster, E-MRS Spring Meeting 2019, Nice, France.
- Poster, nanoGe Fall Meeting 2019, Berlin, Germany, 2019
- Poster, 233<sup>rd</sup> ECS Meeting, Seattle, WA, May 2018.
- Poster, SUNCAT Summer Institute, Stanford, 2017.
- Oral, 2016 MRS Spring Meeting, Phoenix, AZ.
- Poster, Gordon Research Conference “Renewable Energy: Solar Fuels”, Italy, 2016.
- Poster, Solar Fuels Network, International Discussion Meeting, London, UK, 2015.
- Oral, SolarFuel15 conference, Mallorca, Spain, 2015.
- Oral, 2014 MRS Spring Meeting in San Francisco.
- Poster, SolarFuel13 conference, Granada, Spain, 2013.
- Oral, MRS Fall Meeting in Boston (F2.04), MA, 2012.
- Oral, Boston College Chemistry Graduate Student Symposium in Dover, MA, 2012.
- Poster, MRS Fall Meeting (BB20.51), Boston, MA, 2011.
- Poster, MRS Fall Meeting (M11.44), Boston, MA, 2009.
- Poster, 235<sup>th</sup> ACS National Meeting, New Orleans, LA, 2008. (earned a Top Undergraduate Poster award)