

# LIST OF PUBLICATIONS - JAN BALAJKA

(updated 02/2025)

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## BOOK CHAPTERS:

**Atomic structure of oxide surfaces in aqueous environment** - review chapter (edited by David E. Starr and Hendrik Bluhm)

Giada Franceschi, Ulrike Diebold, **Jan Balajka**\*

*Encyclopedia of Solid-Liquid Interfaces*, Elsevier 2023 (eds: Klaus Wandelt and Gianlorenzo Bussetti)

DOI: [10.1016/B978-0-323-85669-0.00078-7](https://doi.org/10.1016/B978-0-323-85669-0.00078-7)

## PAPERS IN PEER-REVIEWED JOURNALS:

21. Johanna I. Hütner, Andrea Conti, David Kugler, Florian Mittendorfer, Georg Kresse, Michael Schmid, Ulrike Diebold, and **Jan Balajka**\*  
Stoichiometric reconstruction of the Al<sub>2</sub>O<sub>3</sub>(0001) surface  
*Science* 385, 6714, 1241-1244 (09/2024)  
DOI: [10.1126/science.adq4744](https://doi.org/10.1126/science.adq4744)
20. Chunlei Wang, Panukorn Sombut, Lena Puntischer, Manuel Ulreich, Jiri Pavelec, David Rath, **Jan Balajka**, Matthias Meier, Michael Schmid, Ulrike Diebold, Cesare Franchini, Gareth S. Parkinson  
A multitechnique study of C<sub>2</sub>H<sub>4</sub> adsorption on a model single-atom Rh<sub>1</sub> catalyst  
*Journal of Physical Chemistry C* (09/2024)  
DOI: [10.1021/acs.jpcc.4c03588](https://doi.org/10.1021/acs.jpcc.4c03588)
19. Giada Franceschi, Sebastian Brandstetter, **Jan Balajka**, Igor Sokolović, Jiří Pavelec, Martin Setvín, Michael Schmid, Ulrike Diebold  
Interaction of surface cations of cleaved mica with water in vapor and liquid forms  
*Faraday Discussions* 249, 84-97, (2024)  
DOI: [10.1039/D3FD00093A](https://doi.org/10.1039/D3FD00093A)
18. Christopher T. Parzyck, Chad A. Pennington, William. J. I. DeBenedetti, **Jan Balajka**, Elena M. Echeverria, Hanjong Paik, Luca Moreschini, Brendan D. Faeth, Cheng Hu, J. Kevin Nangoi, Vivek Anil, Tomás A. Arias, Melissa A. Hines, Darrel G. Schlom, Alice Galdi, Kyle M. Shen, and Jared M. Maxson  
Atomically smooth films of CsSb: a chemically robust visible light photocathode  
*APL Materials* 11, 10, (10/2023)  
DOI: [10.1063/5.0166334](https://doi.org/10.1063/5.0166334)
17. Florian Kraushofer, Matthias Meier, Zdeněk Jakub, Johanna Hütner, **Jan Balajka**, Jan Hulva, Michael Schmid, Cesare Franchini, Ulrike Diebold, Gareth S. Parkinson  
Oxygen-terminated (1 × 1) reconstruction of reduced magnetite Fe<sub>3</sub>O<sub>4</sub>(111)  
*Journal of Physical Chemistry Letters*, 14, 3258-3265 (03/2023)  
DOI: [10.1021/acs.jpcclett.3c00281](https://doi.org/10.1021/acs.jpcclett.3c00281)
16. Giada Franceschi, Pavel Kocán, Andrea Conti, Sebastian Brandstetter, **Jan Balajka**, Igor Sokolović, Markus Valtiner, Florian Mittendorfer, Michael Schmid, Martin Setvín, Ulrike Diebold  
Resolving the intrinsic short-range ordering of K<sup>+</sup> ions on cleaved muscovite mica  
*Nature Communications*, 14, 1, 208 (01/2023)  
DOI: [10.1038/s41467-023-35872-y](https://doi.org/10.1038/s41467-023-35872-y)

15. Christopher T. Parzyck, Alice Galdi, J. Kevin Nangoi, William J. I. DeBenedetti, **Jan Balajka**, Brandon D. Faeth, Hanjong Paik, Cheng Hu, Tomas A. Arias, Melissa A. Hines, Darrel G. Schlom, Kyle M. Shen, Jared M. Maxson  
Single-crystal alkali antimonide photocathodes: High efficiency in the ultrathin limit  
*Physical Review Letters*, 128, 11, 114801 (03/2022)  
[DOI: 10.1103/PhysRevLett.128.114801](https://doi.org/10.1103/PhysRevLett.128.114801)
14. Zdenek Jakub, Matthias Meier, Florian Kraushofer, **Jan Balajka**, Jiri Pavelec, Michael Schmid, Cesare Franchini, Ulrike Diebold, Gareth S. Parkinson  
Rapid oxygen exchange between hematite and water vapor  
*Nature Communications*, 12, 1, 6488 (11/2021)  
[DOI: 10.1038/s41467-021-26601-4](https://doi.org/10.1038/s41467-021-26601-4)
13. Alice Galdi, **Jan Balajka**, William J. I. DeBenedetti, Luca Cultrera, Ivan V. Bazarov, Melissa A. Hines, Jared M. Maxson  
Reduction of surface roughness emittance of Cs<sub>3</sub>Sb photocathodes grown via codeposition on single crystal substrates  
*Applied Physics Letters*, 118, 244101 (06/2021)  
[DOI: 10.1063/5.0053186](https://doi.org/10.1063/5.0053186)
12. Alice Galdi, William J. I. DeBenedetti, **Jan Balajka**, Luca Cultrera, Ivan V. Bazarov, Jared M. Maxson, Melissa A. Hines  
The effects of oxygen-induced phase segregation on the interfacial electronic structure and quantum efficiency of Cs<sub>3</sub>Sb photocathodes  
*Journal of Chemical Physics*, 153, 144705 (10/2020)  
[DOI: 10.1063/5.0024020](https://doi.org/10.1063/5.0024020)
11. Doris Grumelli, Tim Wiegmann, Sara Barja, Finn Reikowski, Fouad Maroun, Philippe Allongue, **Jan Balajka**, Gareth S. Parkinson, Ulrike Diebold, Klaus Kern, Olaf M. Magnussen  
Electrochemical stability of the reconstructed Fe<sub>3</sub>O<sub>4</sub>(001) surface  
*Angewandte Chemie International Edition*, 59, 49, 21904-21908 (07/2020)  
[DOI: 10.1002/anie.202008785](https://doi.org/10.1002/anie.202008785)
10. Francesca Mirabella, **Jan Balajka**, Jiri Pavelec, Markus Göbel, Florian Kraushofer, Michael Schmid, Gareth S. Parkinson, and Ulrike Diebold  
Atomic-scale studies of Fe<sub>3</sub>O<sub>4</sub>(001) and TiO<sub>2</sub>(110) surfaces following immersion in CO<sub>2</sub>-acidified water  
*ChemPhysChem*, 21, 16, 1788-1796 (07/2020)  
[DOI: 10.1002/cphc.202000471](https://doi.org/10.1002/cphc.202000471)
9. Paul T. P. Ryan, Matthias Meier, Zdenek Jakub, **Jan Balajka**, Jan Hulva, David J. Payne, Tien-Lin Lee, Cesare Franchini, Francesco Allegretti, Gareth S. Parkinson, and David A. Duncan  
Probing structural changes upon carbon monoxide coordination to single metal adatoms  
*Journal of Chemical Physics*, 152, 051102 (02/2020)  
[DOI: 10.1063/1.5137904](https://doi.org/10.1063/1.5137904)
8. Florian Kraushofer, Francesca Mirabella, Jian Xu, Jiří Pavelec, **Jan Balajka**, Matthias Müllner, Nikolaus Resch, Zdeněk Jakub, Jan Hulva, Matthias Meier, Michael Schmid, Ulrike Diebold, and Gareth S. Parkinson  
Self-limited growth of an oxyhydroxide phase at the Fe<sub>3</sub>O<sub>4</sub>(001) surface in liquid and ambient pressure water  
*Journal of Chemical Physics*, 151, 154702 (10/2019)  
[DOI: 10.1063/1.5116652](https://doi.org/10.1063/1.5116652)
7. Zdeněk Jakub, Florian Kraushofer, Magdalena Bichler, **Jan Balajka**, Jan Hulva, Jiří Pavelec, Igor Sokolović, Matthias Müllner, Martin Setvín, Michael Schmid, Ulrike Diebold, Peter Blaha and Gareth S. Parkinson  
Partially dissociated water dimers at the water-hematite interface  
*ACS Energy Letters*, 4, 2, 390-396 (01/2019)  
[DOI: 10.1021/acsenenergylett.8b02324](https://doi.org/10.1021/acsenenergylett.8b02324)

6. **Jan Balajka**, Jiří Pavelec, Mojmír Komora, Michael Schmid and Ulrike Diebold  
Apparatus for dosing liquid water in ultrahigh vacuum  
*Review of Scientific Instruments* 89, 83906 (08/2018)  
[DOI: 10.1063/1.5046846](https://doi.org/10.1063/1.5046846)
  
5. **Jan Balajka**, Melissa A. Hines, William J. I. DeBenedetti, Mojmír Komora, Jiří Pavelec, Michael Schmid, and Ulrike Diebold  
High-affinity adsorption leads to molecularly ordered interfaces on TiO<sub>2</sub> in air and solution  
*Science* 361, 6404, 786-789 (08/2018)  
[DOI: 10.1126/science.aat6752](https://doi.org/10.1126/science.aat6752)
  
4. Paul T. P. Ryan, Zdeněk Jakub, **Jan Balajka**, Jan Hulva, Matthias Meier, J. T. Küchle, P. J. Blowey, Pardeep Kumar Thakur, Cesare Franchini, David J. Payne, D. Phillip Woodruff, L. A. Rochford, Francesco Allegretti, Tien-Lin Lee, Gareth S. Parkinson, and David A. Duncan  
Direct measurement of Ni incorporation into Fe<sub>3</sub>O<sub>4</sub>(001)  
*Physical Chemistry Chemical Physics*, 20, 16469 (06/2018)  
[DOI: 10.1039/C8CP02516A](https://doi.org/10.1039/C8CP02516A)
  
3. Matthias Meier, Zdeněk Jakub, **Jan Balajka**, Jan Hulva, Roland Bliem, Pardeep Kumar Thakur, Tien-Lin Lee, Cesare Franchini, Michael Schmid, Ulrike Diebold, Francesco Allegretti, David A. Duncan and Gareth S. Parkinson  
Probing the geometry of copper and silver adatoms on magnetite: quantitative experiment *versus* theory  
*Nanoscale* 10, 2226-2230 (01/2018)  
[DOI: 10.1039/C7NR07319D](https://doi.org/10.1039/C7NR07319D)
  
2. **Jan Balajka**, Ulrich Aschauer, Annabella Selloni, Michael Schmid and Ulrike Diebold  
Surface Structure of TiO<sub>2</sub> Rutile (011) Exposed to Liquid Water  
*Journal of Physical Chemistry C* 121, 26424-2641 (10/2017)  
[DOI: 10.1021/acs.jpcc.7b09674](https://doi.org/10.1021/acs.jpcc.7b09674)
  
1. Matthias Müllner, **Jan Balajka**, Michael Schmid, Ulrike Diebold and Stijn F. L. Mertens  
Self-limiting adsorption of WO<sub>3</sub> oligomers on oxide substrates in solution  
*Journal of Physical Chemistry C* 121, 19743-19750 (08/2017)  
[DOI: 10.1021/acs.jpcc.7b04076](https://doi.org/10.1021/acs.jpcc.7b04076)