

List of publications: Dr. Olaf Rüdiger

2022

- Yu, M., Weidenthaler, C., Wang, Y., Budiyo, E., Onur Sahin, E., Chen, M., DeBeer, S., **Rüdiger, O.**, Tuysuz, H. (2022) Surface Boron Modulation on Cobalt Oxide Nanocrystals for Electrochemical Oxygen Evolution Reaction *Angewandte Chemie International Edition*. In English <https://doi.org/10.1002/anie.202211543>
- Alkan, B., Braun, M., Landrot, G., **Rüdiger, O.**, Andronesco, C., DeBeer, S., Schulz, C., Wiggers, H. (2022) Spray-flame-synthesized Sr- and Fe-substituted LaCoO₃ perovskite nanoparticles with enhanced OER activities *Journal of Materials Science* <https://doi.org/10.1007/s10853-022-07738-z>
- Czastka, K., Oughli, A. A., **Rüdiger, O.**, DeBeer, S. (2022) Enzymatic X-ray absorption spectroelectrochemistry *Faraday Discussions* <https://doi.org/10.1039/d1fd00079a>
- Levin, N., Casadevall, C., Cutsail, G. E., Lloret-Fillol, J., DeBeer, S., **Rüdiger, O.** (2022) XAS and EPR in Situ Observation of Ru(V) Oxo Intermediate in a Ru Water Oxidation Complex** *Chemelectrochem* https://doi.org/ARTN_e202101271
- Xiang, W., Yang, N., Li, X., Linnemann, J., Hagemann, U., **Ruediger, O.**, Heidelmann, M., Falk, T., Aramini, M., DeBeer, S., Muhler, M., Tschulik, K., Li, T. (2022) 3D atomic-scale imaging of mixed Co-Fe spinel oxide nanoparticles during oxygen evolution reaction *Nature Communications* <https://doi.org/10.1038/s41467-021-27788-2>

2021

- Gil-Sepulcre, M., Lindner, J. O., Schindler, D., Velasco, L., Moonshiram, D., **Rüdiger, O.**, DeBeer, S., Stepanenko, V., Solano, E., Wurthner, F., Llobet, A. (2021) Surface-Promoted Evolution of Ru-bda Coordination Oligomers Boosts the Efficiency of Water Oxidation Molecular Anodes *Journal of the American Chemical Society* <https://doi.org/10.1021/jacs.1c04738>
- Martini, M. A., **Rüdiger, O.**, Breuer, N., Nöring, B., DeBeer, S., Rodríguez-Maciá, P., Birrell, J. A. (2021) The Nonphysiological Reductant Sodium Dithionite and [FeFe] Hydrogenase: Influence on the Enzyme Mechanism *Journal of the American Chemical Society* <https://doi.org/10.1021/jacs.1c07322>
- Budiyo, E., Zerebecki, S., Weidenthaler, C., Kox, T., Kenmoe, S., Spohr, E., DeBeer, S., **Rüdiger, O.**, Reichenberger, S., Barcikowski, S., Tüysüz, H. (2021) Impact of Single-Pulse, Low-Intensity Laser Post-Processing on Structure and Activity of Mesostructured Cobalt Oxide for the Oxygen Evolution Reaction *ACS Applied Materials & Interfaces* <https://doi.org/10.1021/acsmi.1c08034>

2020

- Hardt, S., Stapf, S., Filmon, D. T., Birrell, J. A., **Rüdiger, O.**, Fourmond, V., Léger, C., Plumeré, N. (2021) Reversible H₂ oxidation and evolution by hydrogenase embedded in a redox polymer film *Nature Catalysis* <https://doi.org/10.1038/s41929-021-00586-1>
- Budiyo, E., Yu, M. Q., Chen, M. M., DeBeer, S., **Rüdiger, O.**, Tuysuz, H. (2020) Tailoring Morphology and Electronic Structure of Cobalt Iron Oxide Nanowires for Electrochemical Oxygen Evolution Reaction *ACS Applied Energy Materials* <https://doi.org/10.1021/acsaem.0c01201>
- Oughli, A. A., Hardt, S., **Rüdiger, O.**, Birrell, J. A., Plumeré, N. (2020) Reactivation of sulfide-protected FeFe hydrogenase in a redox-active hydrogel *Chemical Communications* <https://doi.org/10.1039/d0cc03155k>
- Levin, N., Peredkov, S., Weyhermüller, T., **Rüdiger, O.**, Pereira, N. B., Grotzsch, D., Kalinko, A., DeBeer, S. (2020) Ruthenium 4d-to-2p X-ray Emission Spectroscopy: A Simultaneous Probe of the Metal and the Bound Ligands *Inorganic Chemistry* <https://doi.org/10.1021/acs.inorgchem.0c00663>

- Chongdar, N., Pawlak, K., **Rüdiger, O.**, Reijerse, E. J., Rodriguez-Macia, P., Lubitz, W., Birrell, J. A., Ogata, H. (2020) Spectroscopic and biochemical insight into an electron-bifurcating FeFe hydrogenase Journal of Biological Inorganic Chemistry <https://doi.org/10.1007/s00775-019-01747-1>

2019

- Rodriguez-Macia, P., Kertess, L., Burnik, J., Birrell, J. A., Hofmann, E., Lubitz, W., Happe, T., **Rüdiger, O.** (2019) His-Ligation to the 4Fe-4S Subcluster Tunes the Catalytic Bias of FeFe Hydrogenase Journal of the American Chemical Society <https://doi.org/10.1021/jacs.8b11149>
- Al Samarai, M., Hahn, A. W., Beheshti Askari, A., Cui, Y.-T., Yamazoe, K., Miyawaki, J., Harada, Y., **Rüdiger, O.**, DeBeer, S. (2019) Elucidation of Structure–Activity Correlations in a Nickel Manganese Oxide Oxygen Evolution Reaction Catalyst by Operando Ni L-Edge X-ray Absorption Spectroscopy and 2p3d Resonant Inelastic X-ray Scattering Acs Applied Materials & Interfaces <https://doi.org/10.1021/acsami.9b06752>
- Kutin, Y., Cox, N., Lubitz, W., Schnegg, A., **Rüdiger, O.** (2019) In situ EPR characterization of a cobalt oxide water oxidation catalyst at neutral pH catalysis <https://doi.org/10.3390/catal9110926>

2018

- Shankan, S., Peters, M., Steinborn, K., Krahwinkel, B., Sonnichsen, F. D., Grote, D., Sander, W., Lohmiller, T., **Rüdiger, O.**, Herges, R. (2018) Light-controlled switching of the spin state of iron(III) Nature Communications <https://doi.org/10.1038/s41467-018-07023-1>
- Oughli, A. A., Velez, M., Birrell, J. A., Schuhmann, W., Lubitz, W., Plumere, N., **Rüdiger, O.** (2018) Viologen-modified electrodes for protection of hydrogenases from high potential inactivation while performing H₂ oxidation at low overpotential Dalton Transactions <https://doi.org/10.1039/c8dt00955d>
- Rodríguez-Maciá, P., Reijerse, E. J., van Gestel, M., DeBeer, S., Lubitz, W., **Rüdiger, O.**, Birrell, J. A. (2018) Sulfide Protects [FeFe] Hydrogenases From O₂ Journal of the American Chemical Society <https://doi.org/10.1021/jacs.8b04339>
- Oughli, A. A., Ruff, A., Boralugodage, N. P., Rodríguez-Maciá, P., Plumeré, N., Lubitz, W., Shaw, W. J., Schuhmann, W., **Rüdiger, O.** (2018) Dual properties of a hydrogen oxidation Ni-catalyst entrapped within a polymer promote self-defense against oxygen Nature Communications <https://doi.org/10.1038/s41467-018-03011-7>

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- Rodriguez-Macia, P., Pawlak, K., **Rüdiger, O.**, Reijerse, E. J., Lubitz, W., Birrell, J. A. (2017) Intercluster Redox Coupling Influences Protonation at the H-cluster in FeFe Hydrogenases Journal of the American Chemical Society <https://doi.org/10.1021/jacs.7b08193>
- Kertess, L., Adamska-Venkatesh, A., Rodriguez-Macia, P., **Rüdiger, O.**, Lubitz, W., Happe, T. (2017) Influence of the 4Fe-4S cluster coordinating cysteines on active site maturation and catalytic properties of *C. reinhardtii* FeFe -hydrogenase Chemical Science <https://doi.org/10.1039/c7sc03444j>
- Kertess, L., Wittkamp, F., Sommer, C., Esselborn, J., **Rüdiger, O.**, Reijerse, E. J., Hofmann, E., Lubitz, W., Winkler, M., Happe, T., Apfel, U. P. (2017) Chalcogenide substitution in the 2Fe cluster of FeFe -hydrogenases conserves high enzymatic activity Dalton Transactions <https://doi.org/10.1039/c7dt03785f>
- Rodriguez-Macia, P., Birrell, J. A., Lubitz, W., **Rüdiger, O.** (2017) Electrochemical Investigations on the Inactivation of the [FeFe] Hydrogenase from *Desulfovibrio desulfuricans* by O₂ or Light under Hydrogen-Producing Conditions ChemPlusChem <https://doi.org/10.1002/cplu.201600508>
- Lampret, O., Adamska-Venkatesh, A., Konegger, H., Wittkamp, F., Apfel, U.-P., Reijerse, E. J., Lubitz, W., **Rüdiger, O.**, Happe, T., Winkler, M. (2017) Interplay between CN– Ligands and the

Secondary Coordination Sphere of the H-Cluster in [FeFe]-Hydrogenases Journal of the American Chemical Society <https://doi.org/10.1021/jacs.7b08735>

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- Birrell, J. A., **Rüdiger, O.**, Reijerse, E. J., Lubitz, W. (2017) Semisynthetic Hydrogenases Propel Biological Energy Research into a New Era *Joule* <https://doi.org/10.1016/j.joule.2017.07.009>

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- Rodríguez-Maciá, P., Priyadarshani, N., Dutta, A., Weidenthaler, C., Lubitz, W., Shaw, W. J., **Rüdiger, O.** (2016) Covalent Attachment of the Water-insoluble Ni((P2N2Phe)-N-Cy)(2) Electrocatalyst to Electrodes Showing Reversible Catalysis in Aqueous Solution *Electroanalysis* <https://doi.org/10.1002/elan.201600306>
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