

List of publications: Dr. Olaf Rüdiger

2020

- 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* 56(69), 9958-9961. <https://doi.org/10.1039/D0CC03155K>
- Budiayanto, E., Yu, M., Chen, M., DeBeer, S., **Rüdiger, O.**, Tüysüz, H. (2020). Tailoring Morphology and Electronic Structure of Cobalt Iron Oxide Nanowires for Electrochemical Oxygen Evolution Reaction *ACS Applied Energy Materials* 3(9), 8583-8594. <https://doi.org/10.1021/acsaem.0c01201>
- Levin, N., Peredkov, S., Weyhermüller, T., **Rüdiger, O.**, Pereira, N.B., Grötzsch, 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* 59(12), 8272-8283. <https://doi.org/10.1021/acs.inorgchem.0c00663>
- Chongdar, N., Pawlak, K., **Rüdiger, O.**, Reijerse, E.J., Rodríguez-Maciá, P., Lubitz, W., Birrell, J.A., Ogata, H. (2020). Spectroscopic and biochemical insight into an electron-bifurcating [FeFe] hydrogenase *Journal of Biological Inorganic Chemistry* 25(1), 135-148. <https://doi.org/10.1007/s00775-019-01747-1>

2019

- 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 *Catalysts* 9(11), 926. <https://doi.org/10.3390/catal9110926>
- Al Samarai, M., Hahn, A.W., Askari, A.B., Cui, Y.-T., Yamazoe, K., Miyawaki, J., Harada, Y., **Rüdiger, O.**, DeBeer, S. (2019). Elucidation of Structure-Activity Correlations in a Nickel-Manganese Oxide OER Catalyst by Operando Ni L-edge XAS and 2p3d RIXS *ACS Applied Materials and Interfaces* 11(42), 38595-38605. <https://doi.org/10.1021/acsaami.9b06752>
- Rodríguez-Maciá, P., Kertess, L., Burnik, J., Birrell, J.A., Hofmann, E., Lubitz, W., Happe, T., **Rüdiger, O.** (2019). His-ligation to the [4Fe-4S] sub-cluster tunes the catalytic of [FeFe] hydrogenase *Journal of the American Chemical Society* 141, 472-481. <https://doi.org/10.1021/jacs.8b11149>

2018

- Shankar, S., Peters, M., Steinborn, K., Krahwinkel, B., Sönnichsen, 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* 9, 4750. <https://doi.org/10.1038/s41467-018-07023-1>
- 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* 140(30), 9346-9350. <https://doi.org/10.1021/jacs.8b04339>
- Oughli, A.A., Vélez, M., Birrell, J., Schuhmann, W., Lubitz, W., Plumeré, N., **Rüdiger, O.** (2018). Viologen-modified Electrodes for Protection of Hydrogenases from High Potential Inactivation while Performing H₂ Oxidation at Low Overpotential *Dalton Transactions* 47, 10685-10691. <https://doi.org/10.1039/C8DT00955D>

- Oughli, A.A., Ruff, A., Boralugodage, N.P., Rodríguez-Maciá, P., Plumere, 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* 9, 864. <https://doi.org/10.1038/s41467-018-03011-7>

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- Kertess, L., Adamska-Venkatesh, A., Rodríguez-Maciá, 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* 8(12), 8127-8137. <https://doi.org/10.1039/c7sc03444j>
- Sommer, C., Adamska-Venkatesh, A., Pawlak, K., Birrell, J.A., **Rüdiger, O.**, Reijerse, E.J., Lubitz, W. (2017). Proton Coupled Electronic Rearrangement within the H-Cluster as an Essential Step in the Catalytic Cycle of [FeFe] Hydrogenases *Journal of the American Chemical Society* 139(4), 1440 - 1443. <https://doi.org/10.1021/jacs.6b12636>
- Birrell, J.A., **Rüdiger, O.**, Reijerse, E.J., Lubitz, W. (2017). Semisynthetic Hydrogenases Propel Biological Energy Research into a New Era *Joule* 1(1), 61-76. <https://doi.org/10.1016/j.joule.2017.07.009>
- Rodríguez-Maciá, P., Reijerse, E., Lubitz, W., Birrell, J.A., **Rüdiger, O.** (2017). Spectroscopic Evidence of Reversible Disassembly of the [FeFe] Hydrogenase Active Site *Journal of Physical Chemistry Letters* 8(16), 3834-3839. <https://doi.org/10.1021/acs.jpcllett.7b01608>
- Engelbrecht V., Rodríguez-Maciá P., Esselborn J., Sawyer A., Hemschemeier A., **Rüdiger O.**, Lubitz W., Winkler M., Happe T. (2017). The structurally unique photosynthetic *Chlorella variabilis* NC64A hydrogenase does not interact with plant-type ferredoxins *Biochimica et Biophysica Acta (BBA) – Bioenergetics* 1858(9), 771-778. <https://doi.org/10.1016/j.bbabi.2017.06.004>
- 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* 46, 16947-16958. <https://doi.org/10.1039/c7dt03785f>
- Rodríguez-Maciá, 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* 139(42), 15122-15134. <https://doi.org/10.1021/jacs.7b08193>
- 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* 139(50), 18222-18230. <https://doi.org/10.1021/jacs.7b08735>
- Rodríguez-Maciá, 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* 82(4), 540-545. <https://doi.org/10.1002/cplu.201600508>

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- Birrell, J.A., Wrede, K., Pawlak, K., Rodríguez-Maciá, P., **Rüdiger, O.**, Reijerse, E.J., Lubitz, W. (2016). Artificial Maturation of the Highly Active Heterodimeric [FeFe] Hydrogenase from *Desulfovibrio desulfuricans* ATCC 7757 *Israel Journal of Chemistry* 56(9-10), 852-863. <https://doi.org/10.1002/ijch.201600035>

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- Rodríguez-Maciá, P., Dutta, A., Lubitz, W., Shaw, W.J., **Rüdiger, O.** (2015). Direct Comparison of the Performance of a Bio-inspired Synthetic Nickel Catalyst and a [NiFe]-Hydrogenase, Both Covalently Attached to Electrodes *Angewandte Chemie International Edition* 54(42), 12303-12307. <https://doi.org/10.1002/anie.201502364>
- Oughli, A.A., Conzuelo, F., Winkler, M., Happe, T., Lubitz, W., Schuhmann, W., **Rüdiger, O.**, Plumeré, N. (2015). A Redox Hydrogel Protects the O₂-Sensitive [FeFe]-Hydrogenase from *Chlamydomonas reinhardtii* from Oxidative Damage *Angewandte Chemie International Edition* 54(42), 12329-12333. <https://doi.org/10.1002/anie.201502776>
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- Lubitz, W., Ogata, H., **Rüdiger, O.**, Reijerse, E. (2014). Hydrogenases *Chemical Reviews* 114(8), 4081-4148. <https://doi.org/10.1021/cr4005814>

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- Gutiérrez-Sánchez C., **Rüdiger O.**, Fernández V.M., De Lacey A.L., Marques M., Pereira I.A.C. (2010). Interaction of the active site of the Ni-Fe-Se hydrogenase from *Desulfovibrio vulgaris* Hildenborough with carbon monoxide and oxygen inhibitors *Journal of Biological Inorganic Chemistry* 15(8), 1285-1292. <https://doi.org/10.1007/s00775-010-0686-2>
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