Dr Charles E. Creissen

(Post-Doctoral Researcher)

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RESEARCH INTERESTS

Electrochemistry and catalysis

- Electrochemical CO_2 Reduction
- Water Oxidation
- Nanoparticle synthesis
- Molecular catalysis
- Photo- and electrochemistry

SUMMARY

My research involves the development and integration of electrocatalysts for selective chemical transformations. My previous work focussed on the construction of p-type semiconductor electrodes with immobilised molecular dyes and catalysts for solar-driven proton reduction. The current emphasis of my work is to develop heterogeneous electrocatalysts for selective oxidation and reduction reactions with a particular focus on CO_2 conversion. I am highly interested in drawing links between properties of materials and their activity using a combination of electrochemical, spectroscopic, and physical characterisation techniques.

PUBLICATIONS

(https://scholar.google.co.uk/citations?user=-Fyi-HoAAAAJ&hl=en)

Advancing the Anode Compartment for Energy Efficient CO_2 Reduction at Neutral pH
A. Peugeot, C. E. Creissen, M. Schreiber, M. Fontecave*, *Chem Electro Chem*, 2021, *8*, 2726-2736, DOI:10.1002/celc.202100742

Benchmarking of Oxygen Evolution Catalysts on Porous Ni Supports
A. Peugeot, C. E. Creissen, D. Karapinar, H. N. Tran, M. Schreiber, M. Fontecave*, *Joule*, 2021, *5,* 1281-1300, DOI: 10.1016/j.joule.2021.03.022

Electrochemical CO_2 Reduction to Ethanol with Copper-Based Catalysts
D. Karapinar, C. E. Creissen, J. G. Rivera de la Cruz, M. W. Schreiber, M. Fontecave*, *ACS Energy Lett.,* 2021, *6*, 694-706, DOI: 10.1021/acsenergylett.0c02610

Solar-Driven Electrochemical CO_2 Reduction with Heterogeneous Catalysts
C. E. Creissen*, M. Fontecave*, *Advanced Energy Materials*, 2020, 2002652, DOI: 10.1002/aenm.202002652

Inverse Opal $CuCrO_2$ Photocathodes for H_2 Production Using Organic Dyes and a Molecular Ni Catalyst
C. E. Creissen, J. Warnan, D. Antón-García, Y. Farré, F. Odobel, E. Reisner*, *ACS Catalysis,* 2019, *9*, 9530-9538, DOI: 10.1021/acscatal.9b02984

ZnSe nanorods as a visible-light-absorber for photocatalytic and photoelectrochemical H_2 evolution in water
M. F. Kuehnel[†], C. E. Creissen[†], C. D. Sahm[†], D. Wielend, A. Schlosser, K. L. Orchard, E. Reisner*, *Angew. Chem. Int. Ed.*, 2019, 58, 5059-5063, DOI: 10.1002/anie.201814265 ([†] joint authorship)

Synthetic approaches to artificial photosynthesis: general discussion
Faraday discussions 215, 2019, 242-281

Demonstrator devices for artificial photosynthesis: general discussion
Faraday discussions 215, 2019, 345-363

Solar H_2 generation in water with a $CuCrO_2$ photocathode modified with an organic dye and molecular Ni catalyst
C. E. Creissen, J. Warnan, E. Reisner*, *Chem. Sci.*, 2018, *9*, 1439-1447, DOI: 10.1039/C7SC04476C

Single-Source Bismuth (Transition Metal) Polyoxovanadate Precursors for the Scalable Synthesis of Doped $BiVO_4$ Photoanodes
H. Liu, V. Andrei, K. J. Jenkinson, A. Regoutz, N. Li, C. E. Creissen, A. E. Wheatley, H. Hao, E. Reisner*, D. S. Wright*, S. D. Pike*, *Adv. Mater.*, 2018, 30, 1804033, DOI: 10.1002/adma.201804033

Photoelectrochemical hydrogen production in water using a layer-by-layer assembly of a Ru dye and Ni catalyst on NiO
M. A. Gross, C. E. Creissen, K. L. Orchard, E. Reisner*, *Chem. Sci.*, 2016, *7*, 5537-5546, DOI: 10.1039/C6SC00715E