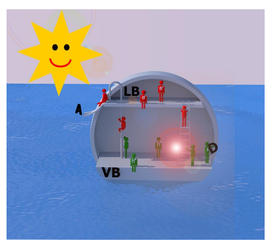
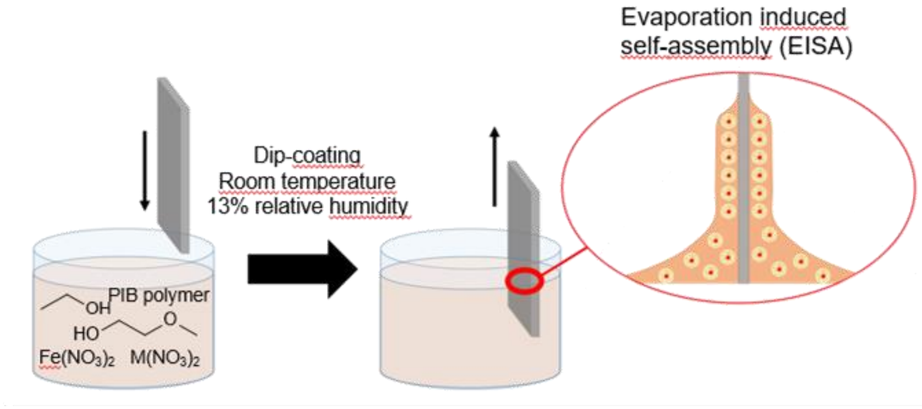
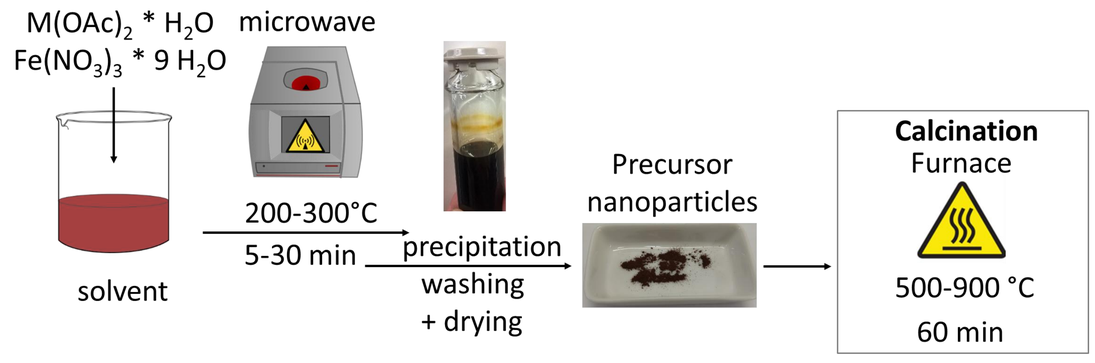
International Conference on Resource Chemistry
March 08-09, 2021

NANOSTRUCTURED FE-BASED MATERIALS FOR PHOTOCATALYSIS AND PHOTOELECTROCHEMICAL WATER SPLITTING



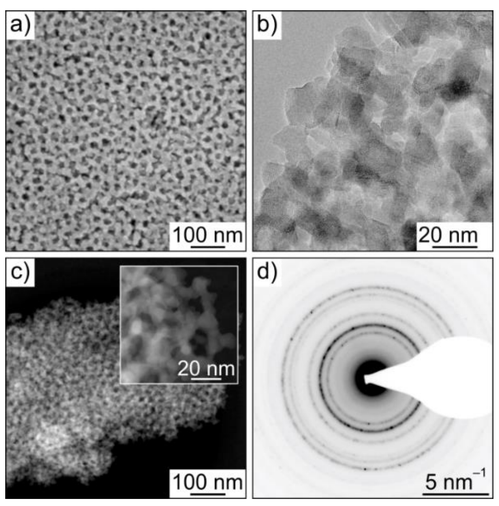
Roland Marschall
Chair of Physical Chemistry III, University of Bayreuth, Universitätsstraße 30, 95447 Bayreuth, Germany
* Corresponding author. e-mail: roland.marschall@uni-bayreuth.de

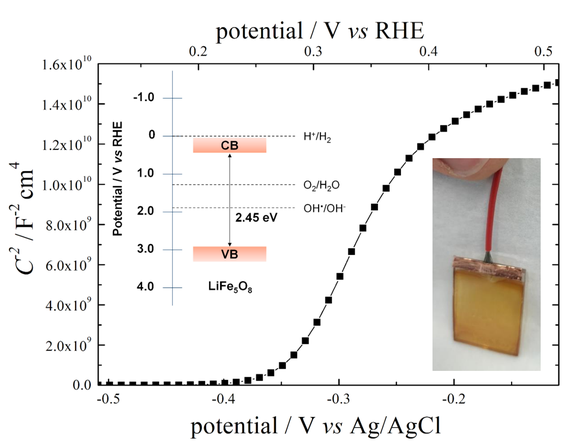


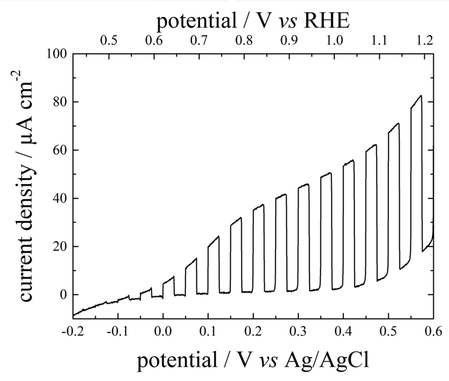


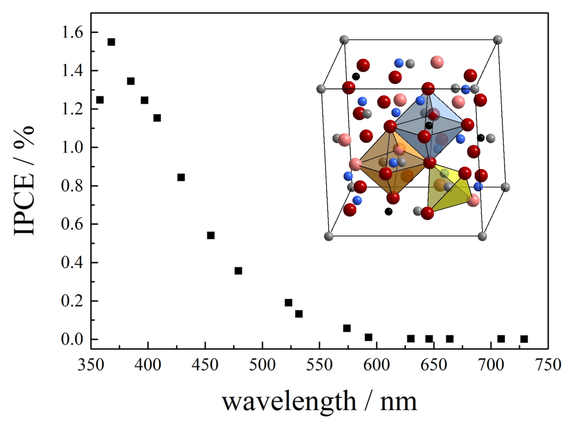
Mesoporous α-$LiFe_5O_8$ Photoanodes

Mesoporous α-$LiFe_5O_8$ photoanodes were prepared by EISA process *via* dip-coating with a block-copolymer as porogen.



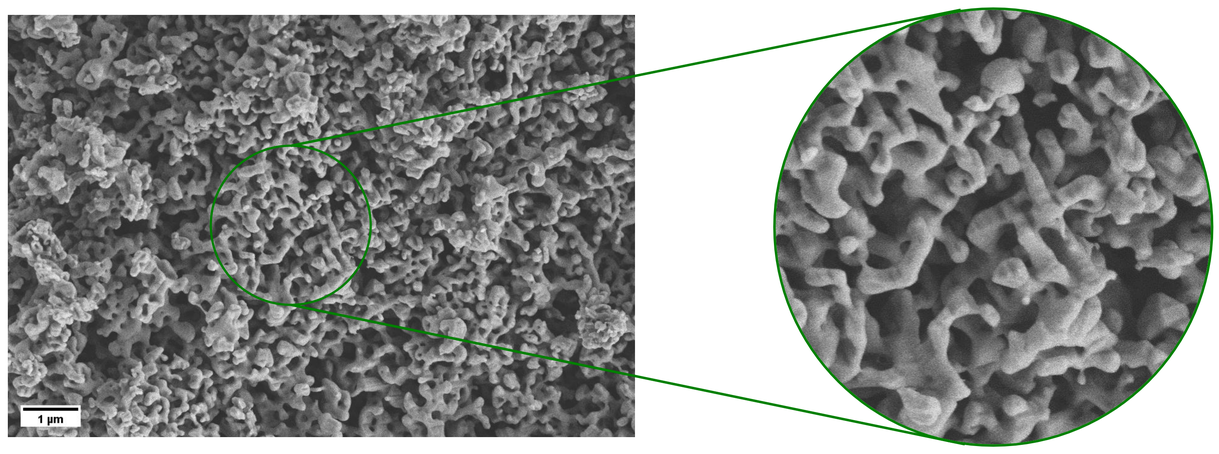




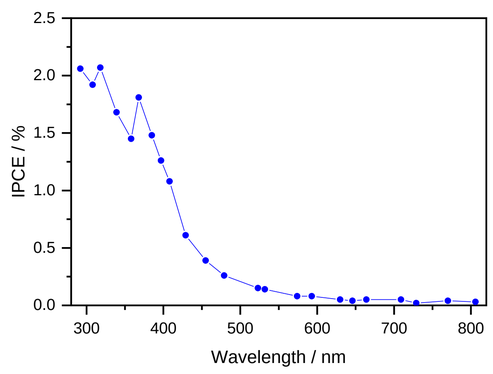


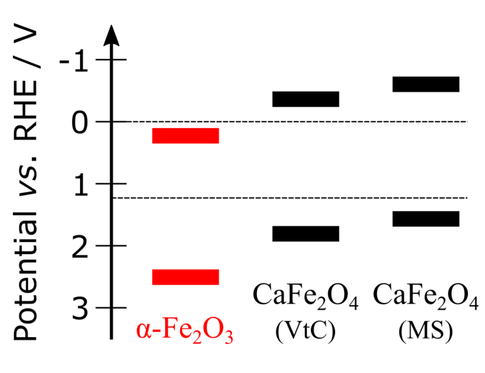
S. Waitz, C. Suchomski, T. Brezesinski, R. Marschall, *Chem. Photo .Chem*. 2 (2018) 1022-1026.

Macroporous p-$CaFe_2O_4$ sponges



- Crystalline orthorhombic $CaFe_2O_4$ after calcination at 900 °C for 1 h.
- Macropores with a diameter of 100–1000 nm and a macropore volume of 0.5 $m^3\ g^{-1}$.
- A mixture of $CaCO_3$ and Fe_3O_4 is obtained after microwave synthesis.

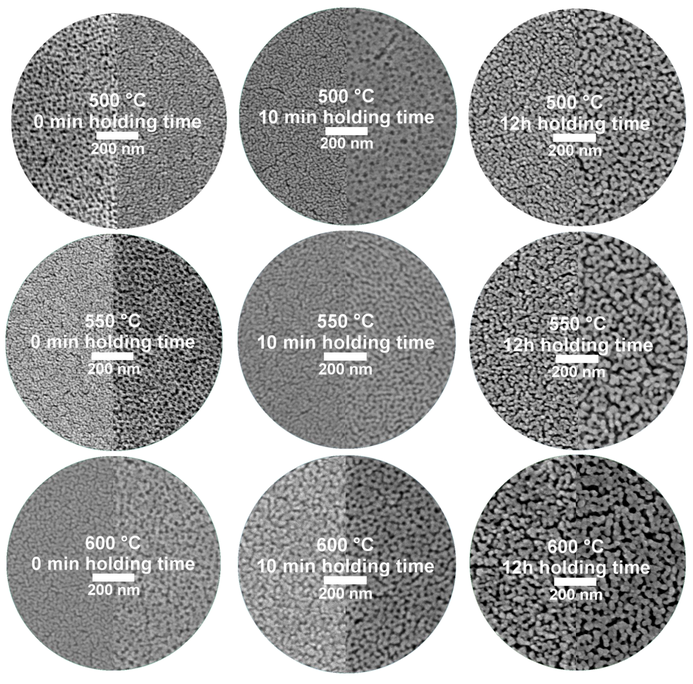




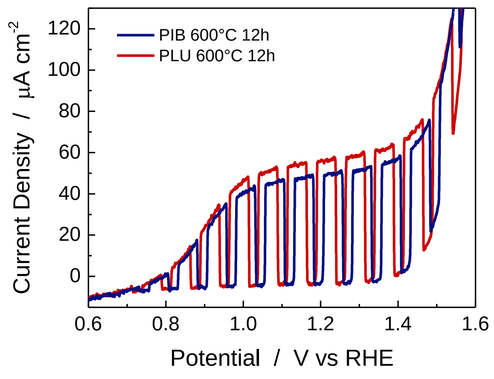
A. Bloesser, J. Timm, H. Kurz, W. Milius, J. Breu, B. Weber, R. Marschall, *Sol. RRL* **2020**, 1900570.

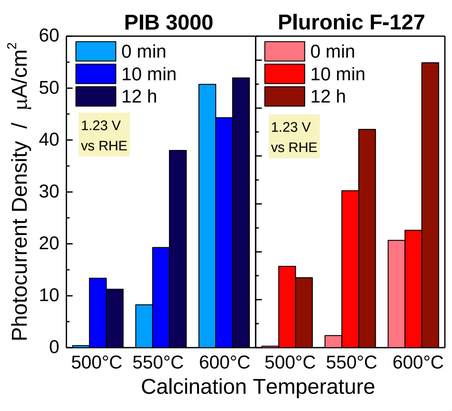
Mesoporous n-$ZnFe_2O_4$ Photoanodes

Mesoporous $ZnFe_2O_4$ photoanodes were prepared by evaporation-induced self-assembly (EISA) process *via* dip-coating with different block-copolymers as porogens.



Calcination procedure has immense influence, especially on pore size & morphology.

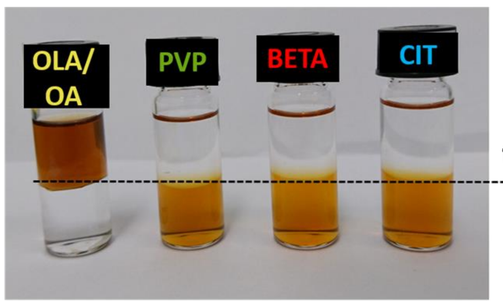


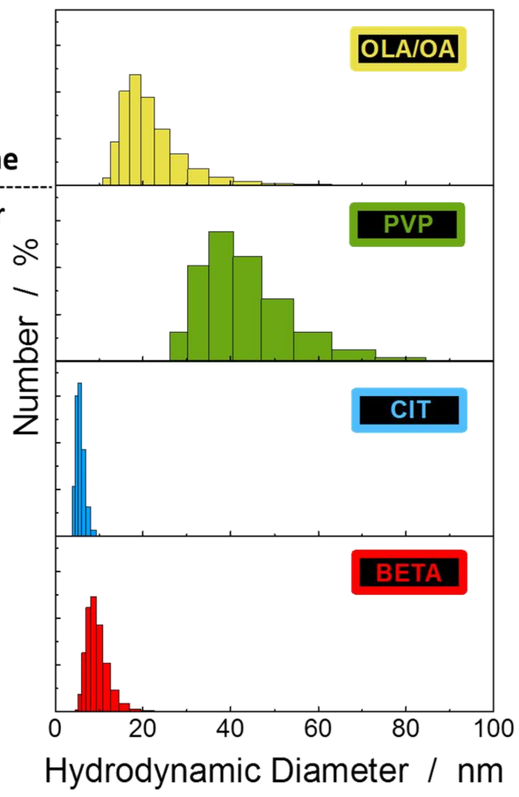


K. Kirchberg, S. Wang, L. Wang, R. Marschall, *Chem. Phys. Chem*. 19 (2018) 2313-2320.

Stable n-$MgFe_2O_4$ Colloids

Stable colloidal dispersions in aqueous media with narrow size distribution were produced by surface functionalization with various ligands.





K. Kirchberg, A. Becker, A. Bloesser, T. Weller, J. Timm, C. Suchomski, R. Marschall, *J. Phys. Chem. C* 121 (2017) 27126-27138.

Solar H2 DFG SPP 1613