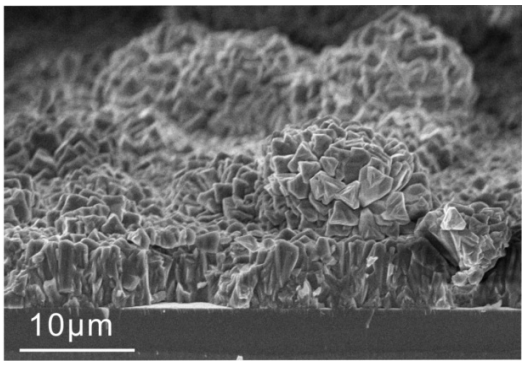
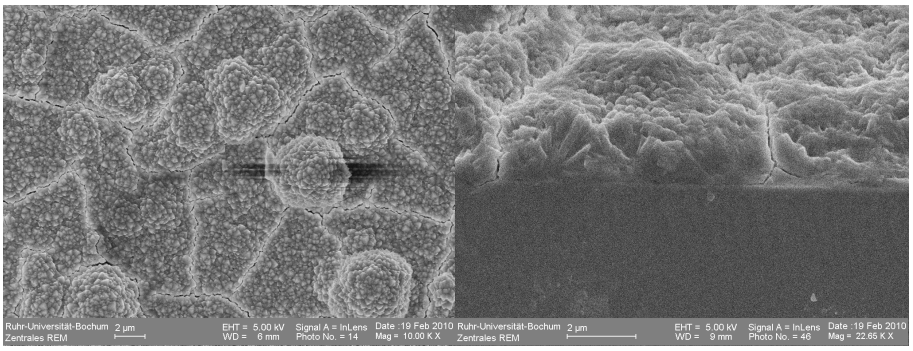
Supporting information:

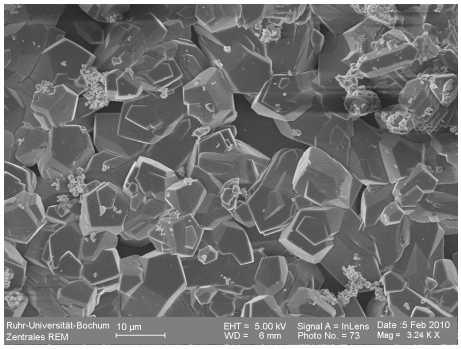
S1) Supplementary SEM images:



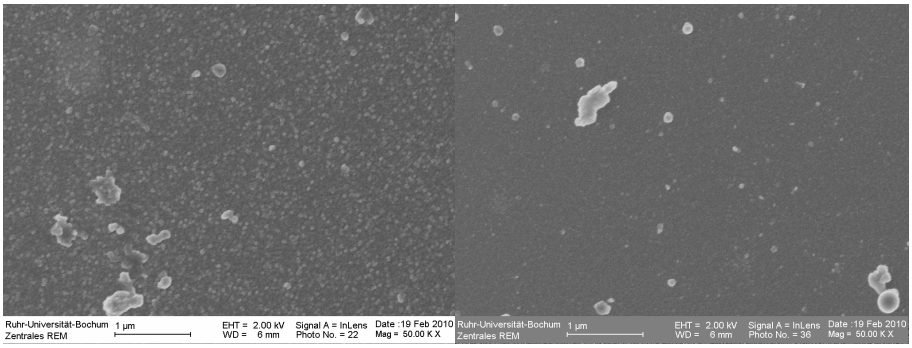
Cross-section of a CPO-27-Ni film synthesized in a THF/water mixture



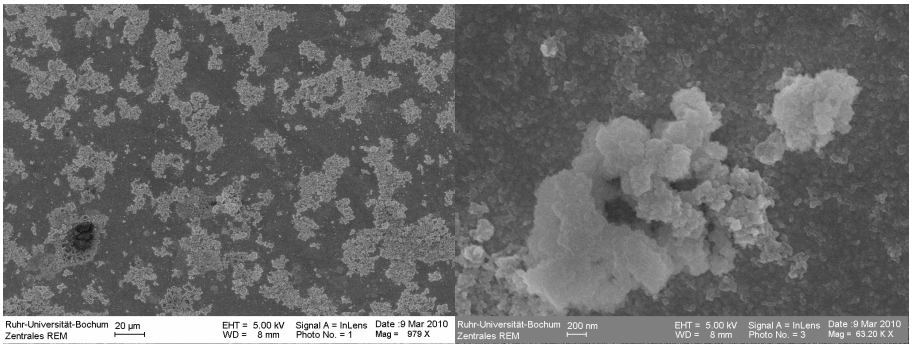
CPO-27-Ni film synthesized in a DMF/ethanol/water mixture



CPO-27-Co film synthesized in a THF/water mixture

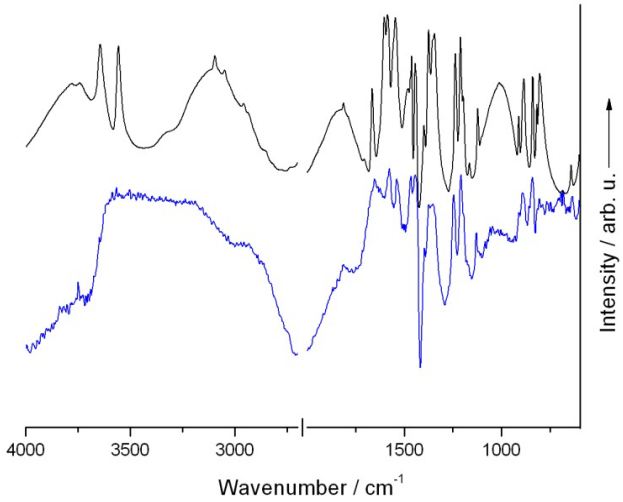


CPO-27-Zn film synthesized in DMF/ethanol/water mixtures. The films are mostly made of amorphous material.

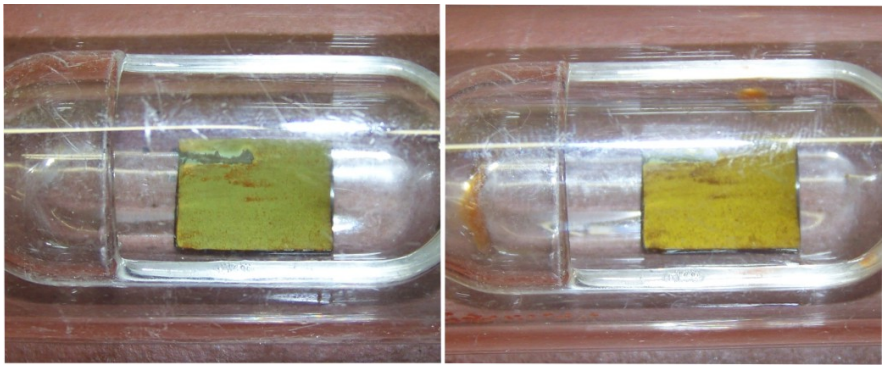


CPO-27-Zn film synthesized in DMF. The film has very low crystallinity.

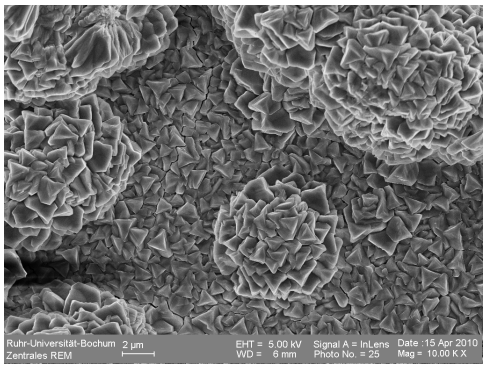
S2) Activation and loading experiments:



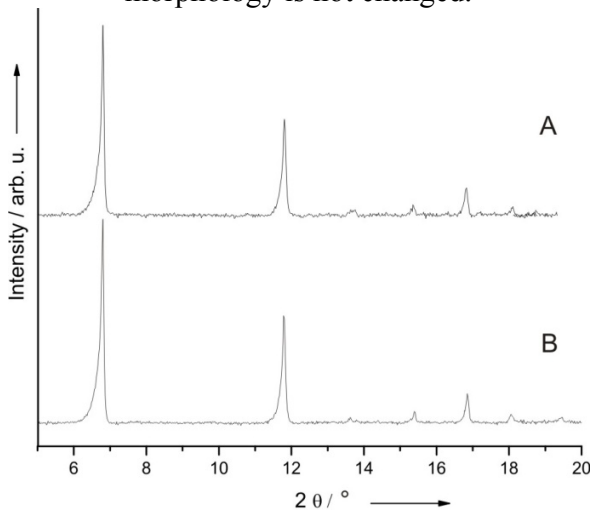
IR reflection spectra of as-synthesized CPO-27-Ni film (blue) and activated sample (black)



Digital photographs of a CPO-27-Ni supported film before (left) and after (right) loading with dark red ferrocenecarboxyaldehyde. Before loading, the film is yellow but looks greenish because of the blue substrate.



SEM micrograph (right) of a CPO-27-Ni film after two activation and re-hydration steps. The morphology is not changed.



XRD patterns of a CPO-27-Ni film (A) after two activation and re-hydration steps compared to (B) as-synthesized sample. No loss of crystallinity can be seen.