

Preparation and characterization of Pt-CoO nanostructures

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Janus nanoparticles are, nano-sized particles with two regions of different surface and different chemical composition, possess energetic interactions that depend not only on their separation but also on their orientation. Since it is known that the metal-metal oxide interfaces take important part in catalytical reactions, we are focusing our researches to this field.

Various Pt-CoO nanostructures were synthesized using Pt seeds made with polyol method and a ferrite based seeding method. Not only nanoparticles but other nano-sized structures were synthesized. During the experiments a universal experimental system was built and used to produce monodisperse noble metal nanoparticles in different sizes. The results were investigated with X-ray diffractometry and with transmission electron microscopy. The future aims are to use these particles as a supported catalyst on solid-liquid and solid-gas phase interfaces, and determine the turnover rates and selectivity based on the experiments in different catalytic reactions.

