Stabilized Metal Nanoparticles from Organometallic Precursors for Low Temperature Fuel Cells

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Abstract: In this work, a review of articles and patents related to the utilization of colloidal metal nanoparticles produced by the decomposition of organometallic precursors as supported electro catalysts in different electrochemical reactions including hydrogen evolution reaction (HER), oxygen reduction reaction (ORR) and methanol oxidation reaction (MOR) is discussed. In the case of stabilized metal nanoparticles, the kind of functional group contained in the stabilizer as well as the metal/stabilizer ratio, to evaluate the effect of particle size on the electrochemical performance, were also debated. Potential applications and perspectives of these electro catalysts in proton exchange membrane fuel cells (PEMFC) are con-tended with reference to the role played by the coordination compounds and costs.

Keywords: Electro catalysts, ligands, metal nanoparticles, organometallic