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Nanostructured materials for green catalysis

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Transition-metal Nanoparticles (NPs) are attracting a great deal of attention in almost any scientific and technological field, including catalysis, where nanoscale materials are becoming more prevalent in a wide range of applications such as fuel conversion, pollution abatement and fine chemical production. Nowadays, many researchers are exploiting the high activity and selectivity of nanocatalysts to develop greener and waste-minimized processes. During the last decade, we exploited nanostructured catalysts based on several metals like Pd, Cu, Au, Zn and Ti to perform a wide range of organometallic reactions (Heck, Suzuki, Ullmann, Stille, carbonylations, cyclopropanations, C-H activations, hydrodehalogenations and CO_2 photoreduction) under environmentally friendly conditions given by the absence of phosphane ligands and using neoteric solvents (ionic liquids, water, emulsion mixtures and so on) as green reaction media. This lecture deals with our recent advances in controlling the catalyst performances by choosing properly the nature of both the ionic liquid and the nanocatalyst.

Biography

Angelo Nacci completed his PhD in Chemical Sciences in 1994 at Bari University (Italy). He was a Researcher in Organic Chemistry at the Chemistry Department of Bari University. In 2001, he was a Visiting Researcher at TUM University of Munich (Germany) and in 2005 he became an Associate Professor of Organic Chemistry. He is currently the President of Chemistry Courses Degree at Bari University. His research interests are focused on: organometallic chemistry in ionic liquids; green nanocatalysis; CO_2 capture and valorization and synthesis and recycling of bioplastics. He is the co-author of almost 70 publications in major journals and has one patent.

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