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Green Organic Transformations in Water with Heterogeneous Catalysts

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Abstract:

A series of amphiphilic polymer-supported transition metal catalysts were developed with a view to use them in greener organic chemical processes which are carried out in water under recyclable conditions. Amphiphilic polymer resin-supported complexes of Pd, Rh, etc. were designed and prepared which catalyzed Suzuki-Miyaura coupling, Heck reaction, Buchwald-Hartwig reaction, etc. in water with catalyst turn over of 10^2-10^8 (at a mol ppb level loading).[1] Amphiphilic resin dispersion of nanoparticles of Pd and Pt were also developed to achieve aerobic oxidation of alcohols and hydrogenation of carbonyls.[2] Development of continuous flow reaction systems as well as asymmetric C-C bond forming catalysis in water by use of polymeric catalysts will also be presented.[3]

References: (if applicable)

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Professor Yasuhiro Uozumi was born in Sapporo, Japan in 1961. After PhD degree-granting from Hokkaido University in 1990, he had been a stuff on Hokkaido Univ (Assistant Prof; 1990-1994)., Columbia Univ. (Research Associate; 1994-1995), Kyoto Univ. (Lecturer; 1995-1997), Nagoya City Univ. (Professor; 1997-2000), and Institute for Molecular Science (Professor; 2000 to date). He served concurrently as a professor of SOKENDAI and Chinese Three Gorge Univ. and also as a director of Accel Project in RIKEN. He received GSC Award (2007), Mext Ministerial Award (2007), CSJ Award for Creative Works (2007), Inoue Prize (2010), The Ministerial Commendation for Science and Technology (2014).