



NANOCATALYSTS BASED ON MYCROCYCLIC RECEPTORS, DENDRIMERS AND HYBRID MATERIALS

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Substitution of classical stoichiometric methodologies with cleaner catalytic alternatives play a crucial role in green chemistry. A promising approach in designing selective catalytic systems is based on synthesis of materials that can selectively bind reactant molecules and stabilize of the intermediates or transition state owing to wide arsenal of noncovalent interactions. This is possible, in particular, when the catalytic systems used nanostructured materials that have ability to supramolecular organization, such as polymers, dendrimers, receptor-molecules.

We developed this approaches for design new catalyst for different processes. Metal complexes with modified calixarenes and cyclodextrines were developed for hydroformylation, Wacker-oxidation, hydroxylation of phenol. New heterogeneous catalysts based on cyclodextrins using molecular imprinting method were synthesized for coupling of aromatic compounds. A number of catalysts based on Pd nanoparticles were prepared using polypropylenamine dendrimers for hydrogenation and Wacker-oxidation ractions.