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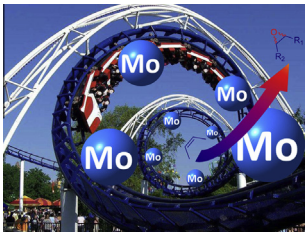
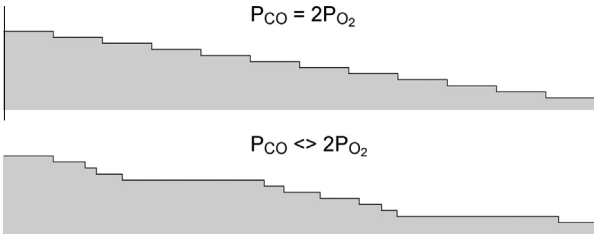
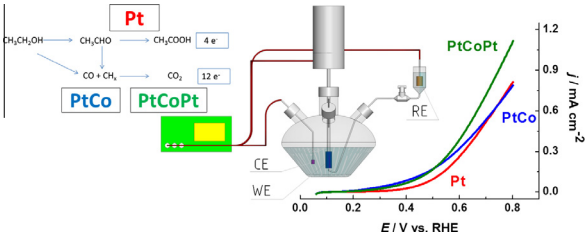
Contents



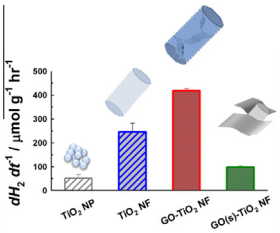
Enhanced stereoselectivity: Mesoporous materials with helical channels show enhanced stereoselectivity in asymmetric olefin epoxidation reactions. The materials with Mo active sites have superior performance compared to homogeneous counterparts. The *ee*'s were found to range between 32% (styrene) and 100% (*R*-(+)-limonene and *trans*-hex-2-en-1-ol). This reveals an important matrix-assisted effect arising from the rigid confined environment provided by the chiral host materials.



The density of monatomic steps is highest when the reactants have the stoichiometric proportions.



Structured PtCo nanoparticle catalysts were prepared with ALD method and their activity for ethanol oxidation was studied with electrochemical methods. PtCoPt-cycled catalyst showed significant activity and durability at elevated temperatures.



TiO_2 nanofibers (NFs) embedded with graphene oxide (GO) sheets were successfully synthesized, characterized, and evaluated for their photo(electro)catalytic properties. The GO sheets embedded in TiO_2 NF improve the interparticle connection and facilitate the charge pair separation by serving as an *in-built* electron collector and conduit.