Special Issue

Noble Metal Catalysts: Pioneering Breakthrough in Chemical Catalysis

Message from the Guest Editor

Noble metal nanoparticles such as Pt, Pd, Rh, Au, Ag, Ir, Ru, and Os supported on alumina, silica, zirconia, titania, zeolites, and structured mesoporous materials have found applications as heterogeneous catalysts in several industrial processes such as petroleum refinery, environmental catalysis, exhaust emission control of stationery and motor vehicles, water purification, and the synthesis of fine and specialty chemicals. Furthermore, noble metal-modified catalytic materials, due to their acid and corrosion resistance properties, can also be applied as sensors, biomedicine products, antimicrobial actions, electronics, hydrogenations, and dehydrogenation reactions.

Noble metal nanoparticles' sizes, dispersions, oxidation states, acid sites, and meta-supporting interactions are highly influenced by the methods of catalyst preparation such as evaporation impregnation, co-precipitation, deposition precipitation, ion exchange, in situ synthesis, and chemical vapor deposition. Taking into consideration sustainable development initiatives, it is of immense importance that noble metal-modified catalysts are applied in the rational utilization of limited natural resources.

Guest Editor

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