Special Issue

Homogeneous and Heterogeneous Catalytic Oxidation and Reduction

Message from the Guest Editors

Apart from enzymatic catalysis, we have seen ever-increasing interest in homogeneous and heterogeneous catalysis for target reactions in various fields. Catalytic activity, selectivity, and stability for many reactions play a crucial role in both catalysis; however, it remains challenging to develop rational design and regulation strategies for catalysts and to establish effective reaction mechanisms. Although many efforts have been made to tune catalytic performance, it is still a huge challenge to strive to establish structure–activity relationships. The key points regarding this relationship include active center and sites, active regions, valence states, promoters, etc. The design, optimization, and understanding of structures and compositions are key goals in the field of catalysis. To better understand and design more efficient catalysts, this Special Issue is dedicated to the trends of various catalytic processes, including Fenton, Fenton-like, enzyme catalysis, enzyme-like catalysis, photocatalysis, sonocatalysis, piezoelectric-catalysis, photo-electrocatalysis, nanocatalysis, etc. In this Special Issue, original research articles and reviews are welcome.

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