Special Issue

Role of Defects and Disorder in Catalysis

Message from the Guest Editors

The functionality of catalysts used in chemical reactions is critically determined by the properties of defects and disorder present in them. Often, the catalysts used in chemical processes either completely lack a long-range order and have the same key features as crystalline materials only at medium or short length scales, or they contain a partial low symmetry environment, due to at least one of the following imperfections: (a) 0D (dimension) or point defects (such as vacancies, interstitials, etc.); (b) 1D or linear defects (such as dislocations, disclinations, etc.); (c) 2D or planar defects (such as grain boundaries (GBs), surfaces, etc.); (d) 3D or extended defects (such as pores, cracks, etc.). The potential topics of this Special Issue thus include (but are not limited to):

- Disordered/amorphous materials for catalysis;
- Role of point, linear, planar, and extended defects in catalysis;
- Designing sustainable catalysts for CO2 reduction and conversion, CO2 capture, NH3 synthesis, H2O splitting, etc.;
- Role of defects and disorder in electrochemical, photochemical, photothermal, and thermochemical catalysis.

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