

Tentative Outline
Special Issue for Current Organic Chemistry
Guest Editor(s): Junkuo Gao, Guodong Qian

TITLE: Design, synthesis and emerging applications of metal-organic frameworks

Aims & Scope:

Metal-organic frameworks (MOFs), also known as porous coordination polymers (PCPs), are constructed from the coordination of metal ions or metal clusters with organic ligands. MOF studies have emerged as one of the most important topics in chemistry and materials science in the past two decades. The porosities of MOF materials can be systematically tuned by judicious selection of molecular building blocks, and a variety of functional sites/groups can be introduced into metal ions/clusters, organic linkers, or pore spaces through pre-designing or post-synthetic approaches. These unique advantages enable MOFs to be used as a highly versatile and tunable platform for various applications in gas storage and separation, chemical sensing, catalysis, and biomedicine. MOFs have some intrinsic advantages to develop as a new class of catalytic materials, such as their ultra-high surface areas (up to 7000 m²/g), tunable pore sizes/shapes, and easily immobilized catalytic active centers into metal nodes or organic linkers. Also, some catalytically active molecules or nanoparticles could be encapsulated into the cavities of MOFs. These attractive features have led to a rapidly growing number of MOFs for heterogeneous catalysis. The purpose of this thematic issue is to summarize and highlight the advanced development of MOFs and their emerging applications in organic chemistry related fields. The topic of this issue will cover several fields that be contributed from experts from organic chemists, inorganic chemists and materials scientists: (1) The advanced development of MOFs, such as novel synthetic approach, post-synthesis, and In situ growth mechanism studies of MOFs; (2) Emerging and promising applications of MOFs, such as light hydrocarbon separation, catalytic organic transformation, photocatalysis, sensing of small molecules, bioimaging and drug delivery.

Subtopics:

- Novel synthetic approach for metal-organic frameworks
- Post-synthesis of metal-organic frameworks
- Metal-organic frameworks for light hydrocarbon separation
- Metal-organic frameworks for catalytic organic transformation
- Metal-organic frameworks for photocatalysis
- Host-guest chemistry of metal-organic frameworks
- Metal-organic frameworks as small molecular sensor
- Metal-organic frameworks for bioimaging
- Metal-organic frameworks for drug delivery
- Metal-organic frameworks for nonlinear optical applications
- In situ growth mechanism studies of metal-organic frameworks
- CO₂ capture and conversion

Approximate Schedule:

- Manuscript Submission Deadline: 11/15/2016
- Peer Review Due: 12/15/2016
- Revision Due: 12/30/2016
- Notification of Acceptance by the Guest Editor: 01/07/2017
- Final Manuscript Due: 01/15/2017