

Review

## **Solvothermal Synthesis of Multifunctional Coordination Polymers**

Yonggang Zhao, Kunhao Li, and Jing Li

Department of Chemistry and Chemical Biology, Rutgers University, Piscataway, NJ 08854, USA

Reprint requests to Prof. Dr. Jing Li. Fax: 732-445-5312. E-mail: jingli@rutgers.edu

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This review focuses primarily on the past 10 years of our development of multifunctional coordination polymers with 1D, 2D and 3D structures employing low-temperature and cost-effective hydrothermal and solvothermal methods. The effects of the experimental conditions and parameters on the crystal formation and phase separation, including temperature and pressure, reaction pH, solvent and composition, are discussed. Our studies have shown that a variety of different types of network structures may be rationally designed and synthesized by deliberate selection and construction of metal building blocks and organic ligands, which lead to numerous interesting properties and multifunctionality that are promising for applications in gas storage and separation, catalysis and optical sensing.

*Key words:* Solvothermal Synthesis, Coordination Polymer, Metal-Organic Framework, Porosity, Multifunctionality