

## Abstract:

This account reviews Cu-containing polymeric coordination compounds synthesized under hydrothermal conditions. The rapid growth of hydrothermal synthesis of new coordination polymers is largely accredited to the developments in crystal engineering via functional network design. Both projected and unexpected framework structures have been obtained through oxidation, reduction, substitution, chemical rearrangement and regular hydrothermal reactions. New methods and reaction pathways play crucial roles in the formation of novel structures and topology under hydrothermal conditions. This review covers copper iodine-containing metal-organic coordination polymers, copper pyridylcarboxylate-containing metal-organic coordination polymers, and metastable coordination polymers with active copper open metal (OM) sites.