Porous materials are of intensive academic and technological interest because of their vital applications for adsorbent, catalyst, ion exchanger, nanotechnology, etc. The development of porous materials has accompanied the demands of modern society. A large number of porous materials have been designed and synthesized in the past half century, including zeolite, mesoporous materials, metal-organic frameworks (MOFs) also known as coordination polymers, and porous organic frameworks (POFs). Although the above-mentioned porous materials seem to have major differences, they also possess corresponding consistencies. For zeolite, the basic structural unit is TO$_4$ tetrahedron. These primary building units (TO$_4$) are linked by corner sharing oxygen atoms together to form secondary building units (SBUs). SBUs can be connected in the form of cages or channels and finally lead to various zeolites with different structures. MOFs or coordination polymers are assembled by inorganic clusters and organic linkers. POF are constructed by purely organic units via robust covalent bonds. The synthesis procedure could be described as the assembly of building units via specific acting force.

The book *Porous Organic Frameworks: Design, Synthesis and Their Advanced Applications* is aimed at offering researchers with the most pertinent and up-to-date advances of POFs. The development of POF materials has attracted extensive attention thanks to their fascinating characteristics, such as structural designing-ability, high surface area, diverse pore dimensions, chemical functionalities, high chemical and thermal stabilities, etc. Encouragingly, POFs display excellent performances in the fields of gas storage, catalysis, host-guest chemistry, and optical and electronic properties, etc. The main benefit of this book is that it highlights the synthetic principles, and structural merits of most of the advanced POFs. In this book the important relationship between structures and functions of POFs is discussed. It is intended for scientists and researchers focusing on this research field. The material in this book will also benefit engineers concerning the applications of POFs. We would like to take
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