

## Geometrical Control of Nanoscale Polymers Based on Organic Framework Approach

Tan Songwen, , \*

(ahn@korea.ac.kr\*)

The nano-assembly boom has resulted in a huge number of research exploring design and fabrication strategies using Organic Frameworks theories. The assembled structures results from one or more interactions: covalent, ionic, hydrogen-bonding,  $\pi$ -stacking and van der Waals. Due to self-assembling, several kinds of covalent organic frameworks were designed by our group by using amine and carboxyl interactions. Interestingly, the frameworks could be self-assembled to different kinds of structures, while the shape, growth rate, size and other geometrical features can be controlled by hands of environmental conditions and fabrication process. Novel materials fabricated can be porous, crystalline and were made entirely from light elements (H, C, N, and O). As molecular architectures with high surface area and pore structure, some materials have high chemical and biological activities. Furthermore, the organic frameworks can also be fabricated to 2D sheet as well as 3D structure.