

演題 : **A Macrocyclic Amphiphile with Photo-reactive
1,8-Diazaanthracenes towards 2-Dimensional
Polymer Synthesis**

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要旨 : A two-dimensional (2D) polymer is defined as a one monomer unit thick, covalently bonded, and laterally infinite molecular sheet with a long-range periodic internal structure. It has absolutely different internal structure in comparison with the conventionally synthesized polymers, being expected to have fundamental applications in many fields such as nanotechnology and analytic science. The most representative 2D polymer is a natural graphene which can be exfoliated from its parent graphite. Although numerous efforts had been devoted in 2D polymer synthesis over last decades, only until 2012, Sakamoto and Schlüter et al. in a real sense achieved the chemical synthesis of a covalently-bonded 2D polymer from a highly shape-persistent macrocyclic molecule, which bears three photo-reactive anthracenes, by photo-irradiation polymerization in a monomer-packed crystal. They, for the first time, also proved the long-range periodic internal structure in their 2D polymers by TEM. However, the crystallization method requires a strict face-to-face (*ftf*) packing of the reactive moieties and the size of 2D polymers completely depends on the crystal size obtained. In this work, a convenient approach towards 2D polymer synthesis by spreading a shape-persistent macrocyclic amphiphile with three photo-reactive 1,8-diazaanthracenes (DAA) at air/water interface on a Langmuir-Blodgett (LB) device is described.

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