

Alignment of perfluorinated supramolecular dendrimer in micro-channels of various shapes

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Self-assembly of soft materials such as block copolymers, colloids, surfactants, supramolecules has been studied for a long time due to its profound impact on nanopattern fabrication. Supramolecular dendrimers provide the rapid construction of nano-structure with high order and small feature size(sub 10nm). Furthermore, its cylindrical phase can be utilized for various purposes such as optoelectronic materials, selective membranes, and novel nano lithographic templates. Despite these advantages, it still has a long way for realizing its application due to the lack of long-range order and orientation. In this research, we synthesize perfluorinated supramolecular thermotropic liquid crystal, which has hexagonal columnar phase and a strong self-assembling tendency. We investigate the alignment and ordering of this synthetic supramolecular dendrimer in micro-channel with various geometry and surface. We anticipate this research will provide an efficient way to get a regularly ordered structure of the supramolecular dendrimer.