

Self-organization of multiblock molecules into new liquid crystalline phases

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T-shaped molecules were designed in such a way that they self-organize into new liquid crystalline phases. Among them nano-scale liquid crystalline honeycombs based on different polygons from triangles to hexagons, and a new LC phase assigned as hexagonal channeled layer phase. One of the phases is a periodic organization of identical pentagonal cylinders, another one a structure composed of square shaped and triangular cylinders in the ratio 2:1. These two different packing motifs represent duals of the same topological class. Also new layer structures were found, for which spontaneous achiral symmetry breaking was observed.

