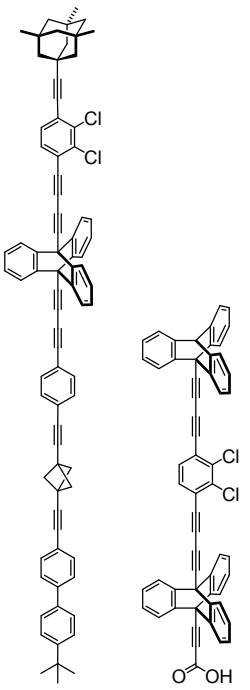
Triptycene Based Arrays of Dipolar Molecular Rotors

Jiří Kaleta,[a] Eva Kaletová,[a] Paul I. Dron,[b] Ke Zhao,[c] Yongqiang Shen,[c] Charles T. Rogers,[c] and Josef Michl[a,b]

[a] Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Flemingovo nám. 2, 16610 Prague, Czech Republic. (kaleta@uochb.cas.cz)

[b] Department of Chemistry and Biochemistry and [c] Department of Physics, University of Colorado, Boulder, CO 80309, U.S.A.

A new generation of rod-shaped molecules for controlled formation of well-organized two-dimensional arrays of dipolar rotors with expected ferroelectric properties was designed and synthesized. Two different approaches to such arrays were tested (i) Formation of surface inclusions between molecular rotor guests and hexagonal tris(*o*-phenylenedioxy)cyclotriphosphazene (TPP) host. The rotors contain a triptycene unit as an efficient stopper preventing complete insertion into the host channels. (ii) Formation of a Langmuir-Blodgett monolayer of molecular rotors on an aqueous subphase and its transfer to a solid substrate. These molecular rotors contain a carboxylate as an anchoring group. Their triptycene units interlock into a triangular network with the rotatable dipoles at lattice points.



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