

Chiral Liquid-Crystalline Fullerodendrimers

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Dendrimers are fascinating macromolecules that possess unique features (well-defined structure, low viscosity, monodispersity) with remarkable properties (encapsulation, chiroptical properties) and present an interesting potential for applications, such as in catalysis, sensor technologies, and surface chemistry.

Fine tuning of the properties can be achieved elegantly by introducing functionalities either in the core of the dendrimer or at its periphery. We are interested in functional macromolecular materials which combine redox and/or optical properties with self-assembly behavior. To reach this goal, we have functionalized [60]fullerene [1], ferrocene [2], polynuclear organometallic clusters [3] and gold nanoparticles [4] with liquid-crystalline dendrimers. The latter were prepared by applying the convergent synthetic approach.

We will present the design, synthesis and mesomorphic properties of the title compounds (one example is shown below), and emphasize the *structure-supramolecular organization* relationship within the liquid crystal state. We will discuss the influence of [60]fullerene on the formation of chiral mesophases, and show that it is possible to tune the mesomorphic properties and supramolecular organization by adequate functionalization of [60]fullerene.

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