

Synthesis and Properties of New Liquid-Crystalline Fulleropyrrolidines

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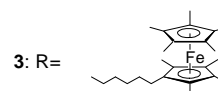
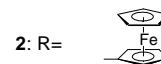
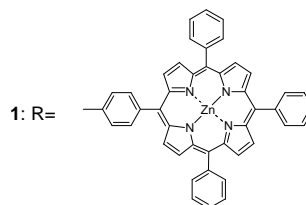
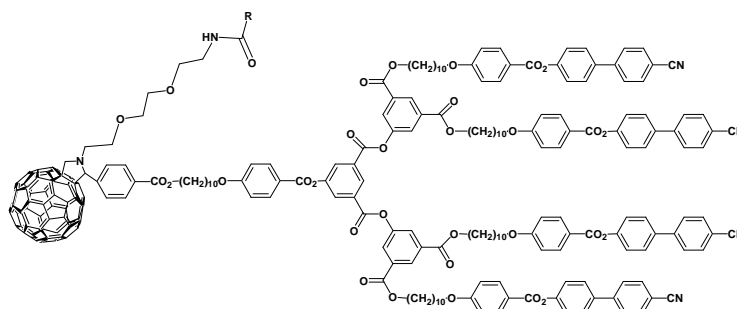
Recent improvements in the functionalisation of fullerenes have significantly accelerated and broadened research on C₆₀-based advanced materials.¹

The search for liquid crystals displaying novel and specific properties is an investment for the future. In this context the incorporation of C₆₀ into liquid crystalline assemblies is expected to contribute to the development of new anisotropic materials.

Different approaches have been used in the design of fullerene-containing thermotropic liquid crystals.² The accessibility of the reactants and the electrochemical stability of fulleropyrrolidines made the liquid crystalline fulleropyrrolidines interesting materials.

We report herein the synthesis and properties of the fulleropyrrolidine derivatives **1**, **2**, and **3**. A dendritic addend of second generation was selected as the liquid-crystalline promoter, in both mono-adducts and bis-adducts fulleropyrrolidines.

Fullerene-ferrocene derivatives (**2,3**) and fullerene-porphyrin (**1**) were designed to elaborate multifunctional liquid-crystalline materials, by associating an electron acceptor unit (C₆₀) and electron donor units (ferrocene, porphyrin). Such materials are promising candidates for the elaboration of molecular switches.



REFERENCES

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