SYNTHESIS, OPTICAL AND SUPRAMOLECULAR PROPERTIES OF CURVED NANOGRAPHENES

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24 d'abril a les 17:00h, Aula Magna

Abstract:

The bottom-up synthesis of well-defined polycyclic conjugated hydrocarbons (PCHs) is still a scientific challenge, being key for the development of material science. The enormous research effort dedicated to carbon-based materials have leaded to a huge bloom of novel architectures such as nanobelts or hoops, chiral nanostructures, bowl- and saddle-shapes, doped or open-shell analogues. Their unique curved structures open novel avenues for applications due to the optical and electronical properties that might arise. Within this context, we have been focused on the synthesis and evaluation of properties of saddle-helical hybrid nanographenes.

Herein, our recent advances in the inclusion of heptagon-containing nanographenes as key distorted motifs in other curved PCHs will be discussed. Particularly, the inclusion of heptagons on hexa-peri-hexabenzocoronene-based helicenes (superhelicenes) leads to highly soluble analogues with promising chiroptical properties. The saddle curvature can be also introduced in nanohoops offering interesting supramolecular behaviour. In this sense, polystyrene microbeads loaded with curved nanographenes generate functional light emitting microcomposite acting as optical microresonators.