

Host-Guest Complexation of [60]Fullerenes and Porphyrins Enabled by “Click Chemistry”

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R�sum� en anglais	<p>Herein the synthesis, characterization, and organization of a first-generation dendritic fulleropyrrolidine bearing two pending porphyrins are reported. Both the dendron and the fullerene derivatives were synthesized by Cu(I) -catalyzed alkyne-azide cycloaddition (CuAAC). The electron-donor-acceptor conjugate possesses a shape that allows the formation of supramolecular complexes by encapsulation of C60 within the jaws of the two porphyrins of another molecule. The interactions between the two photoactive units (i.e., C60 and Zn-porphyrin) were confirmed by cyclic voltammetry as well as by steady-state and time-resolved spectroscopy. For example, a shift of about 85 mV was found for the first reduction of C60 in the electron-donor-acceptor conjugate compared with the parent molecules, which indicates that C60 is included in the jaws of the porphyrin. The fulleropyrrolidine compound exhibits a rich polymorphism, which was corroborated by AFM and SEM. In particular, it was found to form supramolecular fibrils when deposited on substrates. The morphology of the fibrils suggests that they are formed by several rows of fullerene-porphyrin complexes.</p>
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