Poster Presentation

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odd-even alternation in chemically stable porous organic cages

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Amine-linked (C@NH) porous organic cages (POCs) are preferred over the imine-linked (C=N) POCs owing to their enhanced chemical stability. In general, aminelinked cages, obtained by the reduction of corresponding imines, are not shape-persistent in the crystalline form. Moreover, they require multistep synthesis. Herein, a one-pot synthesis of four new amine-linked organic cages by the reaction of 1,3,5-triformylphloroglucinol (Tp) with different analogues of alkanediamine is reported. The POCs resulting from the odd diamine (having an odd number of@CH2 groups) is conformationally eclipsed, while the POCs constructed from even diamines adopt a gauche conformation. This odd–even alternation in the conformation of POCs has been supported by computational calculations. The synthetic strategy hinges on the concept of Schiff base condensation reaction followed by keto–enol tautomerization. This mechanism is the key for the exceptional chemical stability of cages and facilitates their resistance towards acids and bases.

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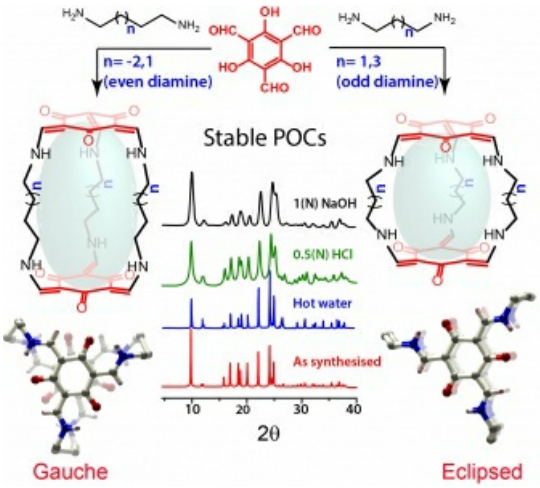

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