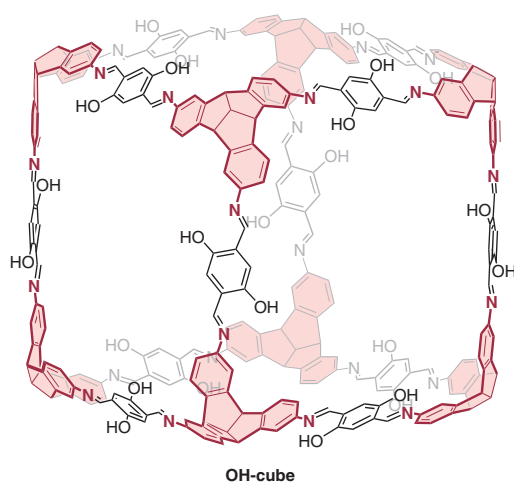
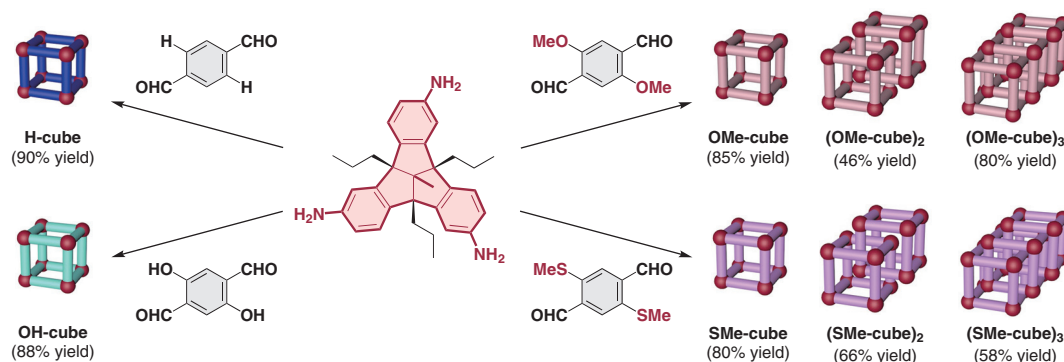


B. P. BENKE, T. KIRSCHBAUM, J. GRAF, J. H. GROSS, M. MASTALERZ* (RUPRECHT-KARLS-UNIVERSITÄT HEIDELBERG, GERMANY)

Dimeric and Trimeric Catenation of Giant Chiral [8 + 12] Imine Cubes Driven by Weak Supramolecular Interactions

Nat. Chem. 2023, 15, 413–423, DOI: 10.1038/s41557-022-01094-w.

Catenation of Chiral Cubes



*Alkyl substituents of tribenzotriquinacene are omitted for clarity.

Significance: Catenanes are at the forefront of research efforts for fabricating molecular machines and intelligent materials. Among the various synthetic tactics developed, aromatic stacking interactions represents the most widely used operating driving force for assembling. Here, the authors report a distinct approach to both monomeric and catenated cages, which are directed by weak dispersion interactions and solvophobic effects.

Comment: Taking 1,4-disubstituted terephthalaldehydes as edges and chiral triamino-tribenzotriquinacenes as vertices, a series of giant [8+12] cubes are successfully obtained via imine condensations. Systematic investigations further indicate that the catenation processes are mainly promoted by dispersion forces among the substituents, such as methoxy and methylthio on terephthalaldehydes, rather than the π - π stacking interactions.

SYNFACTS Contributors: Dahui Zhao, Jianjun Han
Synfacts 2023, 19(04), 0347 Published online: 17.03.2023
DOI: 10.1055/s-0042-1751845; Reg-No.: S03723SF

© 2023, Thieme. All rights reserved.
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

Category

Synthesis of
Materials and
Unnatural Products

Key words

catenanes
chiral cubes
catenated cubes
imine condensation

Synfact
of the
Month

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.