

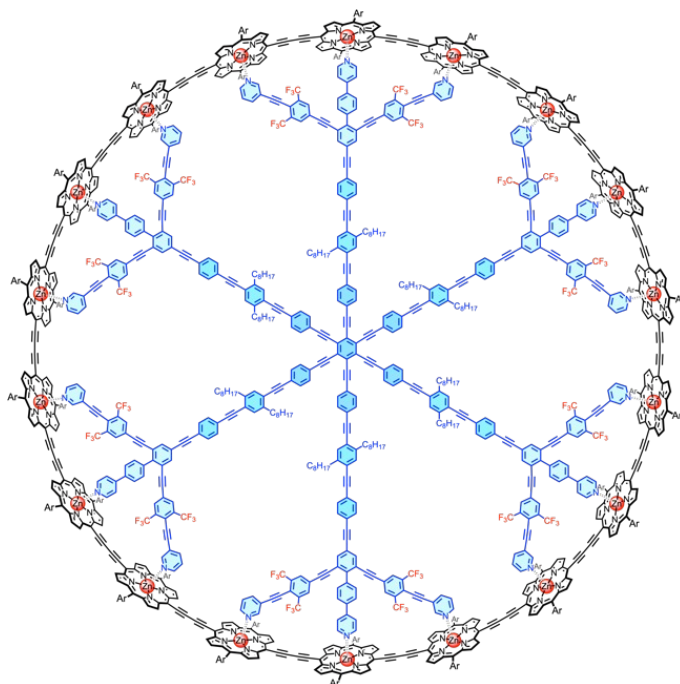
SOLVAY COLLOQUIUM



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How big can they get? What is the size limit of aromaticity?

(Anti)aromaticity arises in molecules with electrons that are delocalized around a circular pathway. Its clearest manifestation is a ring current that is diatropic (aromatic) when the circuit has $4n+2$ electrons or paratropic when it has $4n$ electrons. These ring currents are easily detected by NMR spectroscopy. Most aromatic systems are small rings with up to about 22 π -electrons. In this lecture, experimental evidence will be presented for global ring currents in macrocycles such as the 18-porphyrin nanoring shown below (diameter 8 nm; 242 π -electron circuit in 10+ oxidation state), in which they provide a signature for electronic delocalization.^[1-4]



References: [1] M. Rickhaus, et al. Nat. Chem. 2020, 12, 236. [2] M. Jirásek, et al. Acc. Chem. Res. 2021, 54, 3241. [3] J. M. Holmes, et al. J. Am. Chem. Soc. 2025, 147, 32840. [4] A. Rodríguez-Rubio, et al. Science 2025, 390, 290.

Monday 8 December 2025 at 4:30 P.M.

COFFEE AND TEA WILL BE SERVED AT 4:15 P.M IN FRONT OF THE SOLVAY ROOM

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