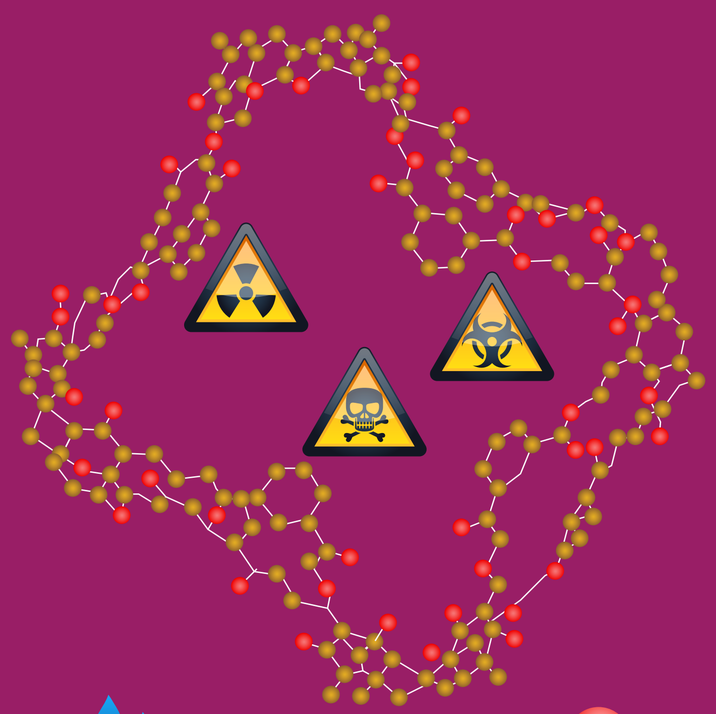
# Towards Water-stable Porous Organic Cages for Pollutant Removal

Chemical Science

## Porous organic cages (POCs) have possible applications in



Water pollutant removal

Proton conduction

Energy production

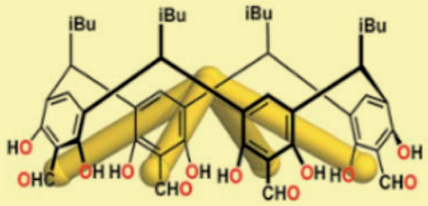
Drug delivery

**However...**

- Imine-linked (C=N) cages are prone to hydrolysis and collapse
- The syntheses of water-stable POCs are often multi-step, use expensive catalysts and have low yield

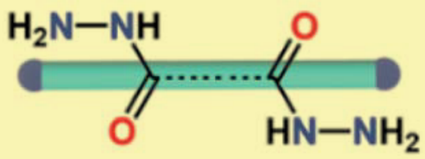
## Can a convenient method for constructing water-stable POCs be developed?

**7 hydrazone-linked POCs prepared using the same tetraformylresorcin[4]-arene cavitand and three different types of dihydrazide ligands**

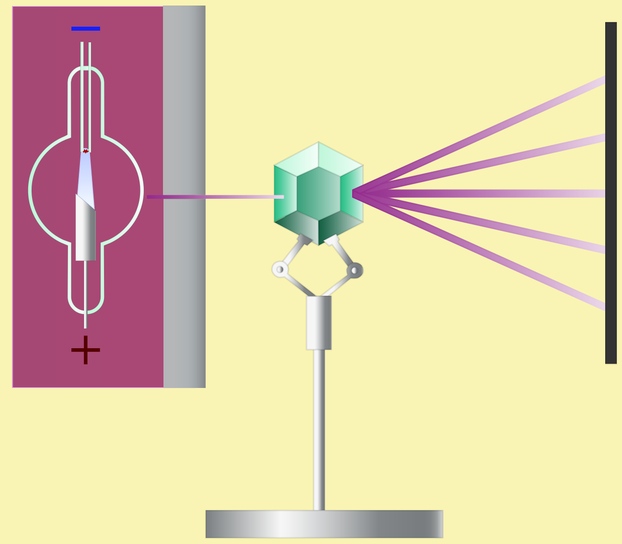



Tetraformylresorcin[4]-arene cavitand

+

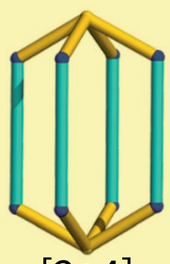



Dihydrazide linker

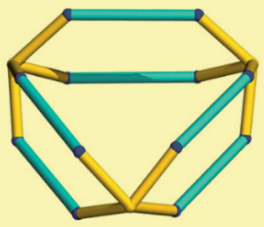



Single-crystal X-ray diffraction

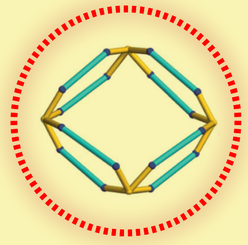
Self-assembly



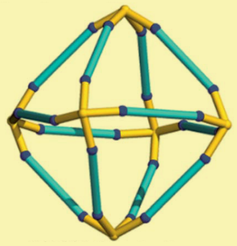
[2+4] Lantern



[3+4] Triangular prism



First report [4+8] Square prism



[6+12] Gigantic octahedron

The new structures

- ✓ Exhibit tunability
- ✓ Are stable in water
- ✓ Can encapsulate pollutants

**A facile method for constructing robust POCs is developed that can remove toxic pollutants from water**

Water-stable hydrazone-linked porous organic cages
Su, Yuan et al. (2021) | Chemical Science | DOI: 10.1039/d1sc04531h

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