



GDR SIGMA-HOLE



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σ Holes at Work

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The general objective in my group is to integrate fundamental, at best new principles from supramolecular chemistry into functional systems. Within this translational supramolecular chemistry, unorthodox non-covalent interactions are of particular interest.^[1] The expectation is that offering new ways to get into contact on the molecular level will provide access to new structures and functions that in turn will open new approaches to address the really big questions. In the spirit of the meeting, focus will be on the integration of σ -hole interactions into functional systems. A rich collection of functions will be covered, catalysis from the beginning^[2,3] to recent results on artificial enzymes that operate with interactions mostly ignored in biocatalysis^[4] and in combination with transport across lipid bilayer membranes.^[5] Repulsion from σ holes will be covered to access mechanosensitivity, switchable σ holes to image forces in living systems,^[6] and, if time permits, a hidden dynamic covalent halogen-bonding switch to deliver proteins into cells.

References :

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- [6] Chen, X.-X.; Gomilla, R. M.; García-Arcos, J. M.; Vonesch, M.; Gonzalez-Sanchis, N.; Roux, A.; Frontera, A.; Sakai, N.; Matile, S. *JACS Au* **2023**, *3*, 2557–2565.