CHIRAL MOLECULAR RECOGNITION TRENDS IN AROMATIC AND HELICAL SYSTEMS REVEALED WITH ROTATIONAL SPECTROSCOPY

SERGIO R. DOMINGOS, *CFisUC, Department of Physics, University of Coimbra, Coimbra, Portugal*; CRISTOBAL PEREZ, *FS-SMP, Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany*; NARCIS AVARVARI, *MOLTECH-Anjou, University of Angers, Angers, France*; MELANIE SCHNELL, *FS-SMP, Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany*.

The rules of engagement for chiral molecules have evolved beyond the static ”three-point” interaction picture. Models where weak intermolecular interactions compete and have a decisive act in establishing the molecular fit are the new travel guides to molecular recognition.[a] Moreover, molecules with dominant aromatic substructure foresee more unconventional intermolecular contact schemes given their delocalized electron distribution. This notion is valid for planar and helical motifs, as is the case of the smallest polycyclic aromatic hydrocarbon with a screw sense, tetrahelicene.[b] Given their compatibility with theoretical calculations, studies of cluster formation in the gas phase are pertinent approaches to disclose the ruling intermolecular forces at play and their role mediating molecular recognition.[c] In this scope, broadband rotational spectroscopy experiments are ongoing, and we will discuss our latest insights from studies on planar and helical aromatic systems.

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[a] A. Zehnacker, M. Suhm. *Angew. Chem. Int. Ed.* 47, 6970–6992 (2008).

[b] S.R. Domingos, K. Martin, N. Avarvari, M. Schnell. *Angew. Chem. Int. Ed.* 58, 11257–11261 (2019).

[c] S.R. Domingos, C. Pérez, N.M. Kreienborg, C. Merten, M. Schnell. *Commun. Chem.* accepted (2021).