



Società Chimica Italiana



Dipartimento di Scienze e Tecnologie Chimiche

## Ciamician-González Lectureship 2019

*Jointly awarded by the Società Chimica Italiana and the Real Sociedad Española de Química to*



### **Prof. Nazario Martín**

*Facultad de Química, Universidad Complutense and IMDEA-Nanociencia,  
Madrid, Spain*

### ***Unveiling the Properties of Chiral Synthetic Molecular Nanographenes***

**Tuesday June 7, 2022**

**10:30**

**Aula Gismondi  
Macroarea di Scienze MMFFNN - Università di Roma "Tor Vergata"**

# Program

- 10:30** Welcome coffee
- 11:00** **Valeria Conte**  
*Dipartimento di Scienze e Tecnologie Chimiche, Università degli Studi di Roma "Tor Vergata"*
- 11:10** **Gianluca Maria Farinola**  
*Dipartimento di Chimica, Università degli Studi di Bari Aldo Moro, President-elect, Società Chimica Italiana*
- 11:20** **Maurizio Prato**  
*Dipartimento di Scienze Chimiche e Farmaceutiche, Università degli Studi di Trieste and Centre for Cooperative Research in Biomaterials (CIC BiomaGUNE), San Sebastián, Spain*
- 11:30** **Nazario Martín**  
Seminar: "*Unveiling the Properties of Chiral Synthetic Molecular Nanographenes*"

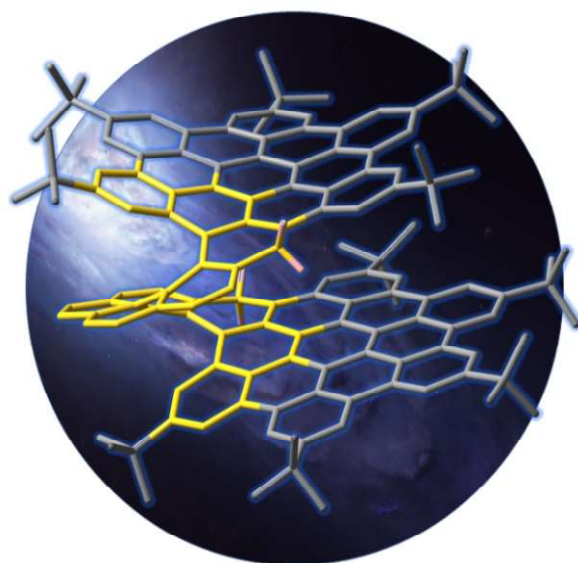
# Unveiling the Properties of Chiral Synthetic Molecular Nanographenes

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Chirality is a ubiquitous property in many natural chemical compounds which, however, is less explored in nanocarbons science.<sup>1-2</sup> We have recently reported a variety of synthetic chiral nanographenes (NGs) by using the standard synthetic chemical protocols resulting in homogeneous and well-defined discrete polyaromatic hydrocarbon molecules with a full control on their size and shape. A variety of synthetic molecular NGs have thus been prepared in our group involving bilayer (Figure),<sup>3</sup> bowl,<sup>4</sup> saddle,<sup>5</sup> and helical,<sup>6</sup> structures. Furthermore, the introduction of chiral elements in these carbon species means to gain an additional dimension of control, thus paving the way to chiroptical, photophysical and supramolecular properties.

In this communication, the most recent findings on the synthesis of novel nanographenes as well as the study of their ability to form (supramolecular) complexes<sup>7</sup> or their redox reactions with alkaline metals will be discussed.<sup>8</sup> In addition, the chiroptical and photophysical features of some of these chiral NGs will be presented revealing the interest of these compounds in the search for new materials showing amazing circularly polarized (CPL) and/or thermally activated delayed luminescence (TADF) properties.



- [1] S. Filippone et al., *Nature Chem.*, 1. (2009), 578.
- [2] For some recent reviews, see: a) E.E. Maroto et al., *Acc. Chem. Res.*, 52 (2019) 1565; b) J. M. Fernández-García, et al., *Chem. Commun.* 58 (2022) DOI: 10.1039/d1cc06561k.
- [3] P. J. Evans, et al., *Angew. Chem. Int. Ed.* 57 (2018), 6774.
- [4] J. M. Fernández-García, et al., *J. Am. Chem. Soc.*, 140 (2018) 17188.
- [5] J. Urieta-Mora et al., *J. Am. Chem. Soc.*, 142 (2020) 4162.
- [6] P. Izquierdo-García, et al., *J. Am. Chem. Soc.*, 143 (2021) 11864.
- [7] S. Zank, et al., *Angew. Chem. Int. Ed.* 61 (2022) e202112834.
- [8] Z. Zhou, et al., *Angew. Chem. Int. Ed.* 61 (2022) e202115747.