

Venerdì **24 Giugno 2022** alle ore **15:00** presso l'aula G

il **Dr. Massimiliano Curcio**

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terrà il seminario dal titolo:

Building and Operating Mechanically Interlocked Molecules as Artificial Molecular Machines

The development of nanoscopic devices able to produce different outputs upon applied stimuli is an appealing task towards innovative nanotechnology applications.¹ In this regard, mechanically interlocked molecules such as rotaxanes and catenanes emerged as strong candidates for artificial molecular machines, due to their ability to associate the motion of the spatially confined components to external inputs provided.²

During this seminar, two rotaxane systems will be presented that behave as light- and/or pH-responsive molecular machines (Figure 1). In both cases, an external stimulus triggers the transformation of the parent compound into multiple structures intertwined through complex networks of equilibria. By carefully analysing the individual properties of each network, their detailed mechanism of function has been unveiled and their potential towards the development of advanced responsive systems thoroughly assessed.^{3,4}

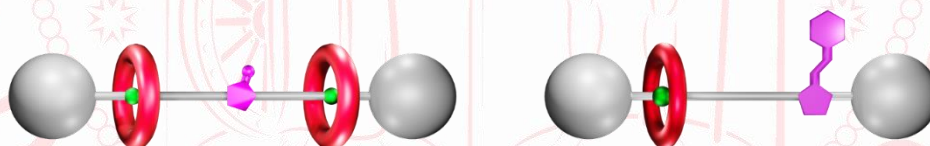


Figure 1. Schematic representation of the responsive rotaxanes investigated.

References

- 1) S. Erbas-Cakmak, D. A. Leigh, C. T. McTernan, A. L. Nussbaumer, *Chem. Rev.* **2015**, *115*, 10081-10206.
- 2) A. W. Heard, S. M. Goldup, *ACS Cent. Sci.* **2020**, *6*, 117-128.
- 3) M. Curcio, F. Nicoli, E. Paltrinieri, E. Fois, G. Tabacchi, L. Cavallo, S. Silvi, M. Baroncini, A. Credi, *J. Am. Chem. Soc.* **2021**, *143*, 8046-8055.
- 4) F. Nicoli, M. Curcio, M. Tranfić Bakić, E. Paltrinieri, S. Silvi, M. Baroncini, A. Credi, *J. Am. Chem. Soc.* **2022**, *ahead of print*, doi.org/10.1021/jacs.1c13537.

La presenza della S. V. sarà molto gradita

Marco Baron

*Il Direttore del Dipartimento
Michele Maggini*