**Internet of functions in complex chemical systems**

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Nowadays, the Internet of Things is becoming a *leitmotiv* in our daily lives, the latter being characterized by interconnected macroscopic tools and technologies thereof operating 24/7. On the nanoscale, the greatest challenges in chemistry is represented by the development of artifical Complex Chemical Systems with functions that are getting more and more sophisticated and interconnected among them. Nature that has been able to assemble multifunctional structures by placing functions at interfaces to generate membranes and other sophisticated systems.

In my lecture I will show how the use principle of supramolecular chemistry makes it possible to realize interfaces [1] and devices [2] that can respond to multiple and independent stimuli, to address some key challenges in opto-electronics such as the fabrication of flexible memories with increased data storage capacities.[3]

I will also describe how simple supramolecular recognition events between a receptor and a given analyte can be exploited to fabricate highly sensitive, highly selective and ultrafast chemical sensors.[4]

Our approaches provide a glimpse on the chemist’s toolbox to generate multifunctional interfaces with ad-hoc properties, which can be of importance for applications in electronics and sensing.

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