



UNIVERSITÀ
DEGLI STUDI
DI TRIESTE



Symposium series funded by the European Union
(ERC, PROTOMAT, 101039578)

**BOTTOM-UP DESIGN AND SYNTHETIC CONSTRUCTION OF LIFE-LIKE TECHNOLOGIES
- SYMPOSIUM SERIES -**

1ST SYMPOSIUM

“INTEGRATING SELF-ASSEMBLED NANOSTRUCTURES IN PROTOCELL DESIGN”

14 JUNE 2023, 14:00 - 17:30

Aula Magna (C11), Department of Chemical and Pharmaceutical Sciences, University of Trieste

SYMPOSIUM SCHEDULE*:		
		OPENING by Prof. Pierangelo Gobbo (chair)
14:00	15:00	Keynote seminar by Prof. Alessandro Aliprandi, University of Padova “Pathway complexity in the self-assembly of luminescent platinum(II) complexes”
15:00	16:00	Seminar by Dr. Agostino Galanti, Marie Curie Fellow, University of Trieste “The colloidosome as protocell model: a robust building block for multicompartmentalised systems with higher-order behaviours”
16:00	16:15	<i>Break</i>
16:15	17:00	Seminar by Dr. Aina Rebasa Vallverdu, University of Trieste “From photocatalytic protocells towards photosynthetic materials”
17:00	17:15	Seminar by Francesco Vicentini, University of Trieste “A new generation of photocatalytic protocells for water oxidation”
17:15	17:30	CONCLUSIONS and group photo
20:00		<i>Aperitif & Dinner to foster networking activities at La Tavernetta al Molo</i>

*All seminars are in English and conclude with a Q&A session. Lecturers are asked to follow the time schedule rigorously by preparing a presentation of appropriate length.



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Keynote Seminar

14 JUNE 2023, 14:00

Aula Magna (C11), Department of Chemical and Pharmaceutical Sciences, University of Trieste

“PATHWAY COMPLEXITY IN THE SELF-ASSEMBLY OF LUMINESCENT PLATINUM(II) COMPLEXES”

Prof. Alessandro Aliprandi (University of Padova)

In square planar Pt(II) complexes the presence of the filled dz^2 orbital normal to the molecular plane is, in some cases, responsible for the establishment of weak dispersion intermolecular interactions as consequence of the closed-shell metal-metal electronic overlap, called metallophilic interaction. When such interactions occur, the luminescence can be switched ON and reach photoluminescent quantum yield close to unity, a phenomenon known as aggregation induced emission (AIE). Typically, the closer the metal centers are, the greater the metallophilic interactions and the bathochromic shift of the emission. The dynamic change of the photoluminescent properties in terms of emission color, intensity and excited state lifetime makes such class of compounds a perfect probe to study self-assembly process. Herein, we present how we can characterize a complex system with multiple self-assembly pathway¹ and solvent dependent chiral amplification process.² In particular we will show the role of the molecular design³ in the self-assembly process, and how stimuli responsive silica capsule can be used to stabilize metastable states and to trigger the formation of the thermodynamic assembly on demand.⁴ Finally, we will show how the media play a pivotal control on the self-assembly process leading even to co-assembled structures.⁵



[1] Aliprandi A. et al. Nature Chemistry, 2016, 8, 10-15.

[2] Lochenie et al. Nanoscale, 2020, 12, 21359–21367

[3] Isr. J. Chem. 2019, 59, 892–897

[4] Picchetti P. et al. Journal of the American Chemical Society, 2021, 143, 7681-87.

[5] Moreno-Alcántar G. et al., Angewandte Chemie - International Edition, 2021, 60, 5407-13.