



POLITECNICO MILANO 1863

DIPARTIMENTO DI

CHIMICA, MATERIALI E INGEGNERIA CHIMICA "GIULIO NATTA"



# 1<sup>st</sup> School of Supramolecular and Bio-Nanomaterials

*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#)

[Organizing Committee](#)

[Programme](#)

[Scientific Themes](#)

[Speakers](#)

[Sponsors & Patronages](#)

[Main Activities](#)

[Application](#)

[Registration](#)

[Venue & Accommodation](#)

[Contacts](#)



## Home

*"Almost all aspects of life are engineered at the molecular level, and without understanding molecules we can only have a sketchy understanding of life itself" Francis Crick (1988)*

This School aims to provide a research-led overview of the current state-of-the-art in self-assembly phenomena, applied supramolecular chemistry, and bio-nanomaterials. Taking inspiration from Nature, the attendees will be guided through all aspects of chemistry underpinning the formation of hierarchical structures and complex functionalities.

During an intense training week the attendees will learn how to design and develop functional materials through the combination and assembly of organic, inorganic, coordination, biological molecules, and higher-level building units.

The field of supramolecular systems and bio-nanomaterials is both timely and highly interdisciplinary and this School wishes to foster a collaborative, multidisciplinary, and dynamic "playground" for presenting and discussing the most recent research results in field of supramolecular chemistry and self-assembled materials.

**Welcome to the 1st School  
of Supramolecular and Bio-Nanomaterials**

[Book of Abstract \(SBN School\\_Book of Abstract\\_compressed\)](#)







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*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#)

[Organizing Committee](#)

[Programme](#)

[Scientific Themes](#)

[Speakers](#)

[Sponsors & Patronages](#)

[Main Activities](#)

[Application](#)

[Registration](#)

[Venue & Accommodation](#)

[Contacts](#)



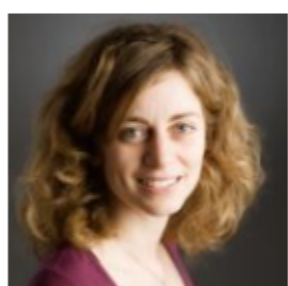
## Organizing Committee



**Pierangelo Metrangolo** (Politecnico di Milano)



**Claudia Pigliacelli** (Politecnico di Milano)



**Francesca Baldelli Bombelli** (Politecnico di Milano)



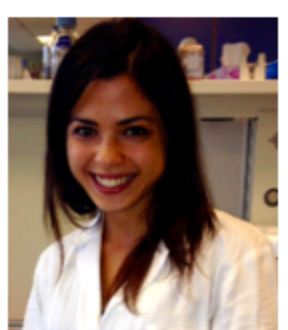
**Gabriella Cavallo** (Politecnico di Milano)



**Valentina Dichiarante** (Politecnico di Milano)



**Giancarlo Terraneo** (Politecnico di Milano)



**Cristina Chirizzi** (Politecnico di Milano)





# 1<sup>st</sup> School of Supramolecular and Bio-Nanomaterials

Lake Como School of Advanced Studies, June 13-17, 2022

- [Home](#)[Organizing Committee](#)[Programme](#)[Scientific Themes](#)[Speakers](#)[Sponsors & Patronages](#)[Main Activities](#)
- [Application](#)[Registration](#)[Venue & Accommodation](#)[Contacts](#)



## Programme

### PROGRAM AT A GLANCE

	Monday 13/06/2022	Tuesday 14/06/2022	Wednesday 15/06/2022	Thursday 16/06/2022	Friday 17/06/2022
09.00 - 09.30					
09.30 - 10.00		Lecture 2 - Helma Wennemers	Lecture 5 - Ivan Huc	Lecture 8 - Michael Zaworotko	Lecture 11 - Nathalie Katsonis
10.00 - 10.15					
10.15 - 10.45		COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK
10.45 - 11.00					
11.00 - 11.30		Lecture 3 - Ronald T. Raines	Lecture 6 - Guido Clever	Lecture 9 - Despina Fragouli	Lecture 12 - Francesca Baldelli Bombelli
11.30 - 12.00					
12.00 - 12.30					Closing Ceremony
12.30 - 13.00		LUNCH	LUNCH	LUNCH	
13.00 - 13.30					
13.30 - 13.45					
13.45 - 14.00					
14.00 - 14.30	REGISTRATION	Lecture 4 - Nonappa	Lecture 7 - Fabio Biscarini	Lecture 10 - Francesco Zerbetto	
14.30 - 15.00					
15.00 - 15.30	Opening	Group Project activities	Group Project Activities	Group Project Activities & Coffee Break	
15.30 - 15.45					
15.45 - 16.00	Lecture 1 - Francesco Stellacci			Project Presentations by Groups	
16.00 - 16.30		Poster Session 1 (posters with odd number) & Happy Hour	Poster Session 2 (posters with even number) & Happy Hour		
16.30 - 17.00	Group Project Announcement and Group Project Activities				
17.00 - 17.30					
17.30 - 18.00					
18.00 - 18.30					
18.30 - 19.00	Welcome Party @ Villa del Grumello			Excursion to Brunate	
19.00 - 19.30					
19.30 - 20.00					
20.00 - 20.30					
20.30 - 21.00					
21.00 - 21.30				Social Dinner @ Brunate Restaurant: Il Falchetto	
21.30 - 22.00					
22.00 - 22.30					

Detailed Program 1 <sup>st</sup> SBN School	
<b>13/06 MONDAY</b>	
14.00 - 15.30	Registration @ Villa del Grumello
15.30 - 15.45	Welcome from the SBN School Organizers
15.45 - 17.00	<b>Francesco Stellacci</b> Title: Supramolecular Approaches to the Design of Extracellular Antivirals
17.00 - 18.30	Group Project Announcement and Group Project Activities
18.30 - 20.30	Welcome Party @ Villa del Grumello
<b>14/06 TUESDAY</b>	
9.00 - 10.15	<b>Helma Wennemers</b> Title: Controlling Supramolecular Assemblies with Peptidic Scaffolds
10.15 - 10.45	Coffee Break
10.45 - 12.00	<b>Ronald T. Raines</b> Title: Lessons from Collagen
12.00 - 13.45	Lunch
13.45 - 15.00	<b>Nonappa</b> Title: Atomically Precise Nanoparticle Assemblies: From 2D Colloidal Crystals to Elastic Membranes
15.00 - 16.30	Group Project Activities
16.30 - 18.00	Poster Session 1 + Happy Hour
<b>15/06 WEDNESDAY</b>	
9.00 - 10.15	<b>Ivan Huc</b> Title: Aromatic Foldamers: Engineering Molecular Shape
10.15 - 10.45	Coffee Break
10.45 - 12.00	<b>Guido Clever</b> Title: Non-statistical Assembly of Functional Coordination Cages
12.00 - 13.45	Lunch
13.45 - 15.00	<b>Fabio Biscarini</b> Title: Organic Bioelectronics
15.00 - 16.30	Group Project Activities
16.30 - 18.00	Poster Session 2 + Happy Hour
<b>16/06 THURSDAY</b>	
9.00 - 10.15	<b>Michael Zaworotko</b> Title: Crystal Engineering: Then and Now
10.15 - 10.45	Coffee Break
10.45 - 12.00	<b>Despina Fragouli</b> Title: Reconsidering and Redeveloping Materials for a Sustainable Future
12.00 - 13.45	Lunch
13.45 - 15.00	<b>Francesco Zerbetto</b> Title: Modelling and Simulations at Different Length- and Time-Scales
15.00 - 16.00	Group Project Activities + Coffee Break
16.00 - 18.00	Project Presentations by Groups
18.00 - 20.00	Excursion to Brunate
20.00 - 23.00	Social Dinner - Brunate (Restaurant: Il Falchetto)
<b>17/06 FRIDAY</b>	
9.00 - 10.15	<b>Nathalie Katsonis</b> Title: Supramolecular Systems in Motion
10.15 - 10.45	Coffee Break
10.45 - 12.00	<b>Francesca Baldelli Bombelli</b> Title: The Empowering Role of Nanotechnology in Medicine
12.00 - 12.30	Closing Ceremony

SBN School\_flyer







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*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#)

[Organizing Committee](#)

[Programme](#)

[Scientific Themes](#)

[Speakers](#)

[Sponsors & Patronages](#)

[Main Activities](#)

[Application](#)

[Registration](#)

[Venue & Accommodation](#)

[Contacts](#)



## Scientific Themes

- Fundamentals of High Performance Computing in chemistry and biology
- Principles of supramolecular chemistry
- Nanomaterials and nanoparticles design
- Porous framework materials and their applications in storage, delivery, and separation
- Self-assembled and supramolecular systems in medicine and nanomedicine
- Smart and biomimetic materials
- Design, synthesis, and characterization of artificial folded molecular architectures
- Peptides and proteins
- Active and responsive molecular systems
- Sensors and transistors

[< Back to Lake Como School of Advanced Studies](#)





POLITECNICO MILANO 1863

DIPARTIMENTO DI  
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# 1<sup>st</sup> School of Supramolecular and Bio-Nanomaterials

*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#) [Organizing Committee](#) [Programme](#) [Scientific Themes](#) [Speakers](#) [Sponsors & Patronages](#) [Main Activities](#)  
[Application](#) [Registration](#) [Venue & Accommodation](#) [Contacts](#)



## Speakers



Athanassia **Athanassiou** – Istituto Italiano di Tecnologia (Italy)



Francesca **Baldelli Bombelli** – Politecnico di Milano (Italy)



Fabio **Biscarini** – Università degli studi di Modena e Reggio Emilia (Italy)



Guido **Clever** – Technische Universität Dortmund (Germany)



Ivan **Huc**– Ludwig-Maximilians-Universität München (Germany)



Nathalie Katsonis – University of Groningen (The Netherlands)



Nonappa – Tampere University (Finland)



Ronald T. **Raines**– Massachusetts Institute of Technology (USA)



Francesco **Stellacci** – Ecole polytechnique fédérale de Lausanne EPFL (Switzerland)



Helma **Wennemers** – ETH Zürich (Switzerland)



Michael **Zaworotko** – University of Limerick (Ireland)



Francesco **Zerbetto** – Università di Bologna (Italy)







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DIPARTIMENTO DI

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# 1<sup>st</sup> School of Supramolecular and Bio-Nanomaterials

*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#)

[Organizing Committee](#)

[Programme](#)

[Scientific Themes](#)

[Speakers](#)

[Sponsors & Patronages](#)

[Main Activities](#)

[Application](#)

[Registration](#)

[Venue & Accommodation](#)

[Contacts](#)



## Sponsors & Patronages



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DIPARTIMENTO DI

CHIMICA, MATERIALI E INGEGNERIA CHIMICA "GIULIO NATTA"



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DIPARTIMENTO DI

CHIMICA, MATERIALI E INGEGNERIA CHIMICA "GIULIO NATTA"



# 1<sup>st</sup> School of Supramolecular and Bio-Nanomaterials

*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#)[Organizing Committee](#)[Programme](#)[Scientific Themes](#)[Speakers](#)[Sponsors & Patronages](#)[Main Activities](#)[Application](#)[Registration](#)[Venue & Accommodation](#)[Contacts](#)

## Main Activities

The School is designed for PhD students, Post-Docs, and young scientists with various fields of interest, who aim at mastering the phenomena associated with molecular recognition and self-assembly, and the design and preparation of functional molecules and materials for a wide-range of high-end applications.

The School Program will be organized in **Lectures** followed by a dedicated **Question Time** coordinated by the Chair of the Session.

**Poster presentations** will be scheduled.

**Project group** and **team building activities** will be proposed.

In particular attendees will be asked to challenge themselves with the development of a **Research Project Idea** in the field of supramolecular and bio-nanomaterials. Students will be divided into groups of 5 attendees + 1 tutor for guiding the group activity. The organizing committee will identify a topic/problem and the group will develop a project/solution based on a school template. On the fourth day of the School (June 16), group representatives will be given 10 min to discuss the respective group project ideas.

A Prize will be awarded to the **Best Research Project Idea** and the **Best Poster**





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DIPARTIMENTO DI

CHIMICA, MATERIALI E INGEGNERIA CHIMICA "GIULIO NATTA"



# 1<sup>st</sup> School of Supramolecular and Bio-Nanomaterials

*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#) [Organizing Committee](#) [Programme](#) [Scientific Themes](#) [Speakers](#) [Sponsors & Patronages](#) [Main Activities](#)  
[Application](#) [Registration](#) [Venue & Accommodation](#) [Contacts](#)



## Application

**APPLICATIONS ARE NOW CLOSED!**

The school will be open to a maximum of **30 attendees**. Selection of participants will be based on a motivation letter and a CV (max 500 words + publications).

**Registration fee is 300 € (VAT 22% included)** and includes all lectures, course materials, Wi-Fi connection, welcome party, lunches, coffee breaks, and the social dinner.

**The School provides significant but limited funds for the support of students and younger participants.**

The support for selected applicants will include: free accommodation at the students' dormitory in the Villa del Grumello for the whole duration of the school.

### Important Dates

OPENING OF THE ONLINE APPLICATION:	March 1, 2022.
APPLICATION DEADLINE:	April 30, 2022
ACCEPTANCE NOTICE:	May 8, 2022
REGISTRATION DEADLINE :	May 22, 2022.





POLITECNICO MILANO 1863

DIPARTIMENTO DI

CHIMICA, MATERIALI E INGEGNERIA CHIMICA "GIULIO NATTA"



# 1<sup>st</sup> School of Supramolecular and Bio-Nanomaterials

*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#)

[Organizing Committee](#)

[Programme](#)

[Scientific Themes](#)

[Speakers](#)

[Sponsors & Patronages](#)

[Main Activities](#)

[Application](#)

[Registration](#)

[Venue & Accommodation](#)

[Contacts](#)



## Registration

Registrations are closed.

[< Back to Lake Como School of Advanced Studies](#)



# 1<sup>st</sup> School of Supramolecular and Bio-Nanomaterials

*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#) [Organizing Committee](#) [Programme](#) [Scientific Themes](#) [Speakers](#) [Sponsors & Patronages](#) [Main Activities](#)  
[Application](#) [Registration](#) [Venue & Accommodation](#) [Contacts](#)



## Venue & Accommodation

The School is housed at [Villa del Grumello](#), which is set in a stunning park overlooking the first basin of the Como lake . It is framed by century-old trees and enchants its visitors with its delicate atmosphere and its harmonious setting.

Driving force of the development of the Larian area, the Villa is a reference point for culture, science, and the business community. Returned to its original prestige, it meets the diverse requirements of its new role as a leading centre for the City of Como. A venue of international significance, the Villa is the ideal location to host conventions, conferences, courses, meetings, fashion shows, and art events.



### How to get there

[Click here for information on how to reach Como](#)

Villa del Grumello is 20 min on foot from Como city center – you can also take a bus, lines 6 and 11 (bus stop: “Como Via Regina Piscine Villa Olmo”, just after “Villa Olmo”).

From the main Train Station (Como S. Giovanni), the nearest bus stop to catch line 6 and 11 is “Piazzale Rocchetto”.

[Click here for a map](#)

### Accommodation

Lake Como structures offer participants a variety of accommodation possibilities to meet all needs. [HERE](#) you can find a list of selected facilities.

It is possible to book directly at the Hostel Ostello Bello (<https://ostellobello.com/it/ostello/ostello-bello-como-lake/>; email: [booking.como@ostellobello.com](mailto:booking.como@ostellobello.com) ). The hostel is 15 minutes walking from Villa del Grumello and it is possible to get a discount reporting you are attending a School organized by Fondazione Alessandro Volta.





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*Lake Como School of Advanced Studies, June 13-17, 2022*

[Home](#)

[Organizing Committee](#)

[Programme](#)

[Scientific Themes](#)

[Speakers](#)

[Sponsors & Patronages](#)

[Main Activities](#)

[Application](#)

[Registration](#)

[Venue & Accommodation](#)

[Contacts](#)



## Contacts

### Scientific Secretariat

Cristina Chirizzi

+39 02 23993049

[cristina.chirizzi@polimi.it](mailto:cristina.chirizzi@polimi.it)

<https://www.suprabionano.eu/>

### Organizing Secretariat

Chiara Stefanetti

Fondazione Alessandro Volta

[chiara.stefanetti@fondazionealessandrovolta.it](mailto:chiara.stefanetti@fondazionealessandrovolta.it)

[www.fondazionealessandrovolta.it](http://www.fondazionealessandrovolta.it)