



# School on: “Surface Science and Applications”

**25-27** November 2024  
L'Aquila, Italy

# Workshop on: “Advanced Materials for the Energy Transition”

**28-29** November 2024  
L'Aquila, Italy

Programme



## LEARNING OBJECTIVES

This in-person meetings aim at providing a forum on new trends in materials science and engineering from the Italian community and beyond. The scope is to gather engineers, physicists, chemists, and materials scientists working on innovative materials and their applications. The scientific program will feature selected talks related to topics covering advanced materials and their applications in surface science and energy transition.

Throughout this event, we will cover, among others, the following topics:

*Introduction to Surface Science;*

*New trends in surface science and coatings;*

*New trends in nanotechnology, nanostructures, and nanoscience;*

*Characterization Techniques;*

*Fabrication and Processing Techniques;*

*Application-Driven Modules.*

Attendees will have the opportunity to participate in Hands-On Training Practical sessions.

## SCIENTIFIC COMMITTEE

**Lorenzo Caputi**, University of Calabria, *Italy* – Chairman

**Anna Cupolillo**, University of Calabria, *Italy* – Chairman

**Antonio Politano**, University of L'Aquila, *Italy* – Chairman

**Amit Agarwal**, Indian Institute of Technology Kanpur, *India*

**Danil W. Boukhvalov**, Nanjing Forestry University, *China*

**Marcello Crucianelli**, University of L'Aquila, *Italy*

**Songül Duman**, Erzurum Technical University, *Türkiye*

**Daniel Farias**, Universidad Autónoma de Madrid, *Spain*

**Chin Shan Lue**, National Cheng Kung University, *Taiwan*

**Doron Naveh**, Bar-Ilan University

**Dino Novko**, Institut of Physics Zagreb, *Croatia*

**Maya Bar-Sadan**, Ben-Gurion University of the Negev

**Yong-Wei Zhang**, A\*STAR, *Singapore*

## ORGANIZING COMMITTEE

**Antonio Politano**, University of L'Aquila

**Tsotne Dadiani**, University of L'Aquila

**Nicole Guerrero**, Politecnico Torino & University of L'Aquila

**Ashraf Assadig Elameen**, Politecnico Torino & University of L'Aquila

**Cristina Rubio**, University of L'Aquila

**Stefano Zenone**, University of L'Aquila

**Rita Di Massimo**, University of L'Aquila



# Monday, 25 November 2024

12.00 – 13.30 Welcome lunch

## OPENING

13.30 – 14.30 **Introduction to Surface Science**  
This section would lay the groundwork for understanding the physical and chemical phenomena that occur at surfaces and interfaces. It would include lectures on the history, scope, and fundamental principles of surface science.

**Antonio Politano**

## SESSION I **Characterization Techniques**

The following modules would focus on the various techniques used in surface science, explaining their principles, capabilities, and limitations.

14.30 – 15.30 **XPS (X-ray Photoelectron Spectroscopy)**  
Detailed study on electronic structure and elemental composition.

**Gianluca D'Olimpio**

15.30 – 16.30 **ARPES (Angle-Resolved Photoemission Spectroscopy)**  
Insights into the electronic band structure of materials.

**Federico Bisti**

16.30 – 16.45 *Coffee Break*

16.45 – 17.45 **STM (Scanning Tunneling Microscopy)**  
Atomic-scale imaging and manipulation.

**Bogdana Borca**

17.45 – 18.45 **EELS (Electron Energy Loss Spectroscopy)**  
Analysis of vibrational and electronic excitations.

**Antonio Politano**



## Tuesday, 26 November 2024

08.45 – 09.45 AFM (Atomic Force Microscopy)  
Nanoscale topography and property mapping.  
**Gianluca D'Olimpio**

09.45 – 10.45 HAS (Helium Atom Scattering) and Molecular Beams  
Surface structure and dynamics studies.  
**Daniel Farias**

10.45 – 11.15 *Coffee break*

**SESSION II Fabrication and Processing Techniques**  
An exploration of methods used to prepare and manipulate surfaces and nanostructures.

11.15 – 12.15 Solution Processing  
Techniques for surface modification and functionalization.  
**Lorenzo Caputi**

12.15 – 13.15 Nanofabrication  
Creating nanostructures for various applications.  
**Doron Naveh**

13.15 – 14.30 *Light Lunch*

**SESSION III Application-Driven Modules**  
These sections would cover the practical applications of surface science in various fields.

14.30 – 15.30 Catalysis with Synchrotron Light  
Use of synchrotron-based techniques in catalysis research.  
**Andrea Lazzarini**

15.30 – 16.30 Electrocatalysis  
Processes at the electrode-electrolyte interface for energy applications.  
**Maya Bar Sadan**

16.30 – 17.30 Photoelectrocatalysis  
Harnessing light to drive catalytic reactions.  
**Danil W. Boukhalov**



## Wednesday, 27 November 2024

- 09.00 – 10.00 Gas Sensing  
Surface interactions for detection of gases.  
**Eduard Llobet**
- 10.00 – 11.00 Surface Plasmons  
Exploitation of electronic excitations at surfaces for sensing and photonic devices.  
**Carlo Rizza**
- 11.00 – 11.20 *Coffee break*
- 11.20 – 12.20 Thermoplasmonic Solar Desalination  
Utilizing solar energy for water desalination through surface plasmon resonance.  
**Sergio Santoro**
- 12.20 – 12.40 **LECTURE**  
Interdisciplinary Approaches and Future Directions  
A module to explore how surface science can be integrated with other disciplines and what future technologies and applications are emerging from current research.  
**Antonio Politano, Lorenzo Caputi**
- 12.40 – 13.40 *Light Lunch*
- PRACTICAL SESSION AT UNIVAQ LABORATORIES**
- 14.00 – 19.00 Hands-On Training  
Practical sessions where participants can get experience with the discussed techniques and applications.



# Workshop on: Advanced Materials for the Energy Transition

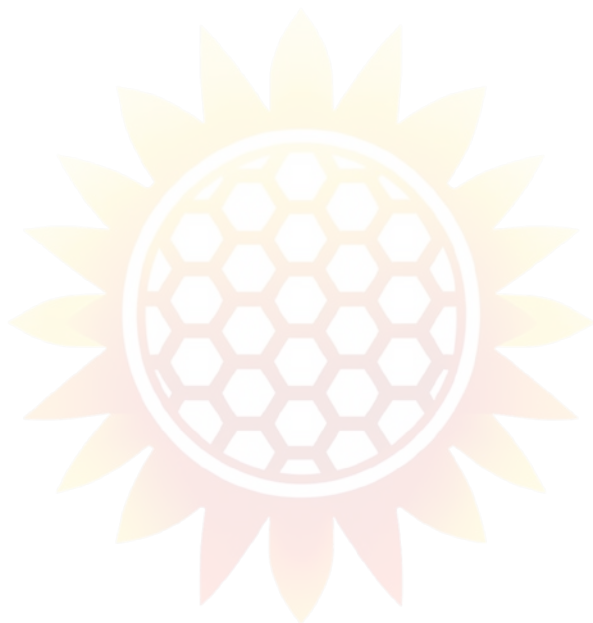
## Thursday, 28 November 2024

- 08.40 – 09.00 Opening and Career Achievement Award  
**Advanced Materials for Catalysis**
- 09.00 – 11.00 Gas sensing technologies for environmental monitoring and industrial applications  
Keynote Speeches by:  
**Eduard Llobet**, Rovira i Virgili University  
And Selected presentations
- 09.40 – 11.00 Selected presentations
- 11.00 – 11.30 *Coffee break*
- 11.30 – 13.30 Keynote Speeches by:  
**Daniel Farias**, Universidad Autónoma de Madrid  
**Maya Bar-Sadan**, Ben-Gurion University of the Negev  
**Danil W. Boukhvalov**, Nanjing Forestry University  
**Gianluca D'Olimpio**, University of L'Aquila  
And Selected presentations
- 13.30 – 14.40 *Light Lunch*
- 14.40 – 15.30 **Poster Session**  
Advanced Materials for Water Treatment
- 15.30 – 15.50 **Sergio Santoro**, University of Calabria
- 15.50 – 16.30 Selected presentations
- 16.30 – 16.50 *Coffee break*
- 16.50 – 18.30 Selected presentations



## Friday, 29 November 2024

- 08.30 – 08.40 **Opening Day 2**  
Advanced Materials for Energy Storage  
Keynote Speeches by:
- 08.40 – 09.40 **Doron Naveh**, Bar-Ilan University  
**Lorenzo Caputi**, University of Calabria
- 09.40 – 11.00 Selected presentations
- 11.00 – 11.30 *Coffee break*
- 11.30 – 13.30 Selected presentations
- 13.30 – 14.30 *Light Lunch*
- 14.40 – 15.00 Best Poster Award
- 15.00 – 15.30 Closing and Award to Best presentation and Emerging Young Researcher





## PARTNERS



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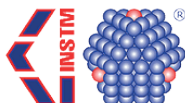
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## INFORMATION

### VENUE

**Hotel Canadian** • Strada Statale, 17 – 67100 Località Casermette, L'Aquila

### REGISTRATION

Registration for the event should be done at the following link:

<https://susameet.com/>

For further assistance, please contact the organizing secretariat:

[susameet2024@centercongressi.com](mailto:susameet2024@centercongressi.com)

### REGISTRATION FEES (22% VAT included)

School Registration*	€ 550,00
School Accommodation Package**	€ 270,00
Workshop Registration***	€ 550,00
Workshop Accommodation Package****	€ 220,00
School and Workshop registration Bundle*****	€ 1000,00
Full Event Accommodation*****	€ 490,00
Social Dinner on November 28th	€ 70,00

\*Includes: access to all School sessions, materials, 3 coffee breaks, and 3 lunches.

\*\*Includes: accommodation for the duration of the School IN 25/11 OUT 27/11 and 2 dinners.

\*\*\*Includes: access to all Workshop sessions, materials, 3 coffee breaks, and 2 lunches.

\*\*\*\*Includes: accommodation for the duration of the Workshop IN 27/11 OUT 29/11 and 1 dinner.

\*\*\*\*\*Includes: access to all School sessions, materials, 6 coffee breaks, 5 lunches.

\*\*\*\*\*Includes: accommodation for the duration of the School and Workshop and 3 dinners.

### ABSTRACT SUBMISSION

Contributions should address scientific and technological advancements in sectors relevant for materials science and engineering, including:

*Advanced materials for sensing technologies*

*Advanced materials for water treatment and environmental sustainability*

*Advanced materials for energy conversion and storage*

*New trends in surface science and coatings*

*New trends in nanotechnology, nanostructures and nanoscience*

**To submit an abstract, participants must first register for the congress.**

Check out the following link for more information on submitting an abstract: <https://susameet.com/abstract-submission/>