



**POLITECNICO  
DI TORINO**

Dipartimento  
di Scienza Applicata  
e Tecnologia



# PLASMONICA 2022



## *8<sup>th</sup> International Workshop on Plasmonics*

July 7-8 | Torino, Italy

Politecnico di Torino

<https://www.plasmonica.it/2022/>

*Supported by*



European Optical Society



Coherence for Europe



Plasmonica is an annual conference aimed at bringing together a thriving community of researchers interested in Plasmonics and Nanophotonics. The conference encourages the attendance of early career researchers, PhD students, and post-docs, as an opportunity to share their latest results, to discuss recent advances in the field and to start new collaborations on challenging scientific topics.

PLASMONICA 2022 is organized by the Polytechnic University of Turin -PoliTo- and it is supported by SIOF (the Italian branch of EOS)

## Organizing Committee @PoliTo

- [Alessandro Chiadò](#)
- [Emiliano Descrovi](#)
- [Fabrizio Giorgis](#)
- [Chiara Novara](#)
- [Paola Rivolo](#)

## Scientific Committee

- [Andrea Baldi](#) –Vrije Universiteit Amsterdam
- [Alessandro Belardini](#) -SAPIENZA Università di Roma
- [Paolo Biagioni](#) -Politecnico di Milano
- [Michele Celebrano](#) -Politecnico di Milano
- [Stefania D'Agostino](#) -CNR Nanotec
- [Enzo Di Fabrizio](#) -Politecnico di Torino
- [Carlo Forestiere](#) -Università degli Studi di Napoli Federico II
- [Maria Caterina Giordano](#) -Università di Genova
- [Michele Ortolani](#) -SAPIENZA Università di Roma
- [Riccardo Sapienza](#) -Imperial College London

## Technical Committee

- [Sofia Bertone](#) -Politecnico di Torino
- [Nataschia De Leo](#) -INRiM
- [Ambra Giannetti](#) -Institute of Applied Physics Nello Carrara
- [Niccolò Marcucci](#) -Politecnico di Torino
- [Daniel Montesi](#) -Politecnico di Torino

## Oral Presentation Guidelines

- The total time allotted to each speaker is 18 minutes. You should plan to speak for 15 minutes and leave 3 minutes for questions.
- There are two projection screens 3.30 m wide in 16:9 format
- We kindly encourage the speakers to upload their presentations on the computer we provide. Please upload your presentation before your session and check there for compatibility issues. For any problem or special request please contact the session chair before the session starts.
- We provide the following equipment:
  - o Laptop (PC)
  - o PowerPoint
  - o Microphone
  - o Laser pointer

## Poster Presentation Guidelines

- Poster boards are about 100 cm width x 120 cm height. Any poster fitting these limits are allowed. Some additional boards 120 cm x 150 cm are also available.
- In the workshop Program, please note the tag number assigned to your poster. This tag identifies the poster board where to hang your poster.
- All necessary material for attaching the poster to the poster board will be available at the Workshop desk.

## Awards

At the end of the Workshop, the **Best Oral Presentation** and the **Best Poster Presentation** will be awarded by SIOF.

The award recipients are announced at the closing of the workshop

## Workshop Location

The Politecnico di Torino main campus is a large complex of buildings in Corso Duca degli Abruzzi. It was opened in November 1958, after the former Industrial Museum was completely destroyed during World War II. The construction of the new Cittadella Politecnica in Corso Castelfidardo began in 1997 when Politecnico di Torino acquired the former Officine Grandi Riparazioni. The Cittadella is a single integrated complex of buildings of high architectural and urban value whose spaces are used by companies and management services, University and individual citizens

## How to reach Politecnico di Torino

The easiest way to reach the conference location is by entering the Cittadella Politecnica of the Polytechnic University of Turin from the parking entrance located in Corso Castelfidardo 42bis, underneath the south bridge. It is ten minutes from the Porta Susa train station.

In alternative, you can take the Metro line from either Porta Susa or Porta Nuova train stations and get off at the "Vinzaglio" stop. Inside the Politecnico you will find signs carrying the Plasmonica 2022 logo pointing to the conference rooms (Classroom P). Support staff will eventually assist you to reach the conference site.



# Workshop Program

Thursday 7th July		
8.30-9.00	Registration	
9.00-10.45	Poster session & Welcome Coffe	
10.45-11.00	Workshop Opening	
11.00-11.50 Invited	M. Petrov	All-dielectric thermonanophotonics: controlling light with heat
12.00-13.20	Lunch	
13.20-15.10	Fundamental Plasmonics & NanoPhotonics – Chair: <u>Stefania D'Agostino</u>	
T. Giovannini	Do We Really Need Quantum Mechanics to Model Nanoplasmonics?	
A. Calzolari	Plasmonic by design	
M. Leonetti	Optical computation of the spin glass dynamics with a digital micromirror device	
L. Pattelli	Probing intensity correlations inside a scattering medium	
C. Triolo	Spontaneous and stimulated optical emission from CH <sub>3</sub> NH <sub>3</sub> PbBr <sub>3</sub> perovskite: Role of excitons	
C. Vanzan	Energy transfer to molecular adsorbates by transient hot-electron tunnelling	
15.10-15.40	Coffe Break	
15.40-16.30 Invited	C. I. Benea-Chelmus	Gigahertz free-space active photonics enabled by electro-optic metasurface modulators
16.30-18.20	Novel Materials & Devices – Chair: <u>Michele Ortolani</u>	
E. Arigliani	Low loss polyethylene-loaded plasmonic waveguides for the mid-infrared	
S. Balestrieri	Plasmonic Nanodevice to generate force gradients to induce nanoparticles acceleration	
A. Gabbani	Magnetoplasmonics beyond metals: Transparent Conductive Oxide Nanocrystals Enable High Performance Sensing	
A. Mancini	Thin film Surface Phonon Polaritons dispersion in suspended Silicon Carbide Membranes	
N. Marcucci	Controlling resonant surface modes by arbitrary light-induced optical anisotropies	
F. Rusconi	Mid-infrared dielectric antennas on ENZ substrates	
18.20	R. Tagliapietra	Characterization and analysis of biological assays by Enhanced Raman Spectroscopy
Social Dinner at «Snodo» Restaurant		

**Friday 8th July****8.30-10.40** **Metasurfaces & NanoParticles – Chair: [Alessandro Belardini](#)****10.40-11.10** **Coffe Break**

A. Calà Lesina Time-domain topology optimization of wideband dispersive plasmonic nanostructures

N. Granchi Optical assessment of dewetted Mie resonators through Dark-field Scanning Microscopy

H. Gupta Bound State in the Continuum in Resonant hBN Metasurfaces

M. Lipok Assembly and optical properties of amyloid-gold hybrid nanomaterials

C. Mancarella Plasmonic and Photonic Multifunctional Metamaterials with Tunable Properties based on Alternative Plasmonic Materials

S. Nic Chormaic Single nanoparticle trapping using metamaterial-assisted optical tweezers

E. Petronijevic (Un)conventional experiments and simulations of chiro-optical effects in plasmonic

**11.10-12.00** S. Schlücker Nanogold: A Journey From Ideal Dimers to SERS-based Lateral Flow Assays  
**Invited****12.00-13.20** **Lunch****12.30-14.00** **Round Table & Election Steering Committee Plasmonica****14.00-15.40** **Ultrafast & Non-Linear NanoPhotonics– Chair: Carlo Forestiere**

F. De Luca Surface charge modulated nonlinear response of heavily doped semiconductors

A. Di Francescantonio Dual-pump coherent control of the nonlinear emission by a plasmonic nanoantenna

M. Romanelli Ultrafast Dynamics of Photochromic Molecules Coupled to Plasmonic Nanoantennas

A. Rossetti Developing an Ultrafast Scanning Tunnelling Microscope

A. Zilli Second-harmonic generation of visible light by a monolithic LiNbO<sub>3</sub> metasurface**15.40-16.00** **Coffe Break****16.00-18.25** **Sensing – Chair: [Maria Caterina Giordano](#)**

S. Bernatova Optical force aggregation of gold nanorods for high sensitivity detection of molecular to nano-plastics particulate matter

E. Cara Reference-free X-ray fluorescence for the molecular quantification: determination of SERS enhancement factor

C. D'Andrea Surface-enhanced Raman scattering with nanophotonic and biomedical amplifying systems for a more accurate diagnosis of Alzheimer's disease

M. Iarossi	Probing Neurons Before and After Differentiation on Sharp-tipped Au Nanopyramid Arrays with SERS
B. Miranda	Hydrogel-based Plasmonic Nanocomposites for Label-free and Non-label free Biomolecular Interactions Monitoring
D. Montesi	Portable SERS device for early cancer diagnostics
M. Najem	Barcode-like Aluminum Bowties towards an extended SEIRA sensing
R. Polito	A confocal mid-infrared microscope for time-resolved difference spectroscopy of membrane proteins
<b>18.25</b>	<b>Workshop Closing &amp; Award Ceremony</b>

## List of posters

<b>Thursday 7th July Poster session</b>		
1	H. Ali	Chiral Effect and Extraordinary Transmission in Metal Films with Elliptical Nanohole Arrays
2	L. Baldassarre	sSNOM characterization of the IR-active vibrational mode in highly strained hBN microbubbles
3	A. Belardini	Luminescence of molecules on plasmonic metasurfaces induced by chiral light
4	S. Benedetti	Control of the optical response of plasmonic nanoparticles on transparent conductive oxide through doping
5	S. Bertone	SERS specific and label free detection of tetracyclines
6	P. Biagioni	Towards polarization control in Bloch surface waves
8	L. Cascino	Surface Plasmons Effects on Azobenzene Photoisomerization
9	M. Condorelli	Ag Nanoflower as single-particle SERS active substrate
10	C. Deriu	Tailored Colloidal Nanostars for Surface Enhanced Raman Spectroscopy (SERS): Optimization of Formulation Components and Study of the Stabilizer-Nanoparticle Interactions
11	C. Forestiere	An Operative Approach to Quantum Electrodynamics in Dispersive Dielectric Objects Based on a Polarization Modal Expansion
12	A. Foti	Tip-enhanced Raman spectroscopy of polymer functionalized multiwalled carbon nanotubes
13	H. Garrone	Plasmonic gold nanostructured layer for photon absorption efficiency enhancement in Transition-Edge Sensors
14	M.C. Giordano	Large-scale photon harvesting in nanopatterned 2D semiconducting layers
15	N. Granchi	Engineering high Q/V photonic modes in correlated disordered systems
17	F. Intonti	Near-field hyper-spectral imaging of resonant Mie modes in a dielectric island

18	G. Lucchesi	Silver Nanowires Plasmon Enhancement of Photovoltaic Efficiency in Lead-Free Perovskite Solar Cells
19	M. Ortolani	Detection of strong light-matter interaction and near-field mapping on a single resonator
20	F. Pineider	Some interesting applications of ITO nanoparticles in thermoplasmonics
21	J. Segervald	Plasmonic metasurface assisted by thermally imprinted polymer nano-well array for surface enhanced Raman scattering
22	O. Tammaro	Magnetic metal-inorganic composite as new multimodal contrast agents: preliminary research design
23	M.E. Temperini	Infrared nanospectroscopy study of light-sensitive proteins with a plasmonic probe
24	A. Zilli	Quantitatively linking morphology and optical spectroscopy of single silver nanoparticles reveals surface composition changes
25	T. Venanzi	Mid-infrared photocurrent microscopy of vertical van der Waals semiconductor heterostructures