



PhD DAYS 2024

Annual workshop
of the PhD students in nanotechnology
UNIVERSITY OF TRIESTE

February 12-14, 2024

Adriatico Guesthouse ICTP
via Grignano 9, 34151Trieste

Kastler Lecture Hall

Organizers: Alberto Morgante and Paola Posocco



**UNIVERSITÀ
DEGLI STUDI
DI TRIESTE**

DAY 1

9:00-9:15

OPENING

Alberto Morgante – *Coordinator of the PhD School in Nanotechnology, University of Trieste*
Giovanni Comelli – *Head of the Department of Physics, University of Trieste*

CHAIR: Alberto Morgante (UniTS)

9:15-9:35

Andrea Berti

Growth and characterization of novel two-dimensional and zero-dimensional materials: cocatalysts for hydrogen production

9:35-9:55

Gaia Castellani

Innovative photocatalysts and photocatalytic systems for improving air quality

9:55-10:15

Gaia Grando

Development of metal-free photocatalysts for advanced photocatalytic organic synthesis

10:15-10:35

Miriam Marchi

Catalytic materials and processes for CO₂ emissions

10:35-10:55

Smritirekha Talukdar*

Electrocatalysis and photocatalysis: pathways for CO₂ reduction to fuels

10:55-11:20

COFFEE

CHAIR: Alois Bonifacio (UniTS)

11:20-11:40

Beatrice Bartolomei

Tailoring Carbon Dots: from enhanced purification strategies to multifunctional materials

11:40-12:00

Teresa Zio

Synthesis and characterization of boron-based 2D materials

12:00-12:20

Andrea Bogo

Functional carbon nanostructures for green electrolyzers

12:20-12:40

Valeria Chesnyak

Synthesis and characterization of heterogeneously doped graphene nanostructures

12:40-13:00

Carlo Federico Pauletti

Theoretical modelling of CeO₂-based catalysts for industrial and environmental applications

13:00-14:00

LUNCH

CHAIR: Erik Laurini (UniTS)

14:00-14:20

Alvise Camurri Pilon

A new 3D-printed PCL scaffolds treated with nanohydroxyapatites to enhance osteogenic differentiation

14:20-14:40

Martin Iurilli

Use of collagen-coated polycaprolactone nanofibers to improve healing of difficult wounds

14:40-15:00

Gabriele Cavalieri

Prediction of key properties of molecular (nano)systems for biological and industrial application through HPC-based techniques and experimental validation

15:00-15:20

Francesco Piazza

Seaweed polysaccharides for novel applications and products

15:20-15:40

COFFEE

CHAIR: Serena Bonin (UniTS)

15:40-16:00

Marco Rizzo

Airborne exposure, skin contamination and skin absorption to gallium arsenide and other metals in nanodimensions

16:00-16:20

Martina Zangari

On the role played by protein-asbestos fiber interactions in asbestos toxicity: a multi-technique approach from single fiber to cellular and tissue milieu

16:20-16:40

Elena Ferraguzzi

Insights into the behavior of cholesterol in the modulation of lipid rafts derived from model membrane systems: their interactions with differently functionalized gold nanoparticles

DAY 2

CHAIR: Loredana Casalis (Elettra Sincrotrone Trieste)

9:15-10:00	FRANCESCO RICCI	DNA nanodevices that sense, move and are temporally controlled
10:00-10:20	Giorgia Demontis	Nanomechanical systems for the understanding of cellular mechano-response at the nanoscale
10:20-10:40	Nicoletta Braidotti	Morphological and mechanical properties of cells investigated by multimodal imaging and local probing techniques
10:40-11:00	Lorenzo D'Amico	Imaging and characterization of fibrotic tissues
11:00-11:20	Laura Morbiato	Novel catalytic protocell models based on carbon nanodots
11:20-11:45	COFFEE	

CHAIR: Dan Cojoc (IOM-CNR)

11:45-12:05	Caterina Medeot	Green synthesis of nanoparticles and implementation of biosensors for medical-diagnostic applications
12:05-12:25	Giuseppe Misia	Design, synthesis and application of novel 2D-nanocomposites for biosensing
12:25-12:45	Matteo Flaibani	Dynamic nanomaterials with functional properties
12:45-13:05	Maria Sbacchi	Carbon nanodots as versatile materials for the synthesis of novel protocells and prototissues
13:05-14:15	LUNCH	

CHAIR: Alberto Morgante (UniTS)

14:15-15:00	SILVIA GROSS	Rational design of low temperature and sustainable wet-chemistry approaches to inorganic nanomaterials
15:00-15:20	Mario Leopoldo Rivera Salazar	Study of materials for relevant catalytic reactions by AP-NEXAFS and AP-XPS spectroscopies
15:20-15:40	Ferdinando Bassato	Study of materials for SOFC applications by AP-NEXAFS
15:40-16:00	COFFEE	

CHAIR: Albano Cossaro (UniTS)

16:00-16:20	Ilargi Napal Azcona	X-ray spectroscopies for a hydrogen-based economy
16:20-16:40	Magdhi Kirti	Development of semiconductor-superconductor nanosystems for applications in quantum computation

20:00 - SOCIAL DINNER

DAY 3

CHAIR: Paolo Macor (UniTS)

9:15-10:00	FEDERICO COLOMBO	Advanced methods for fabricating 3D multicellular systems and characterizing their biophysical features
10:00-10:20	Federica Moretti	2D filled polymeric nanocomposites with targeted optical and mechanical properties
10:20-10:40	Diandra Mauro*	Carbon nanotechnologies for the development of novel polymeric materials
10:40-11:00	Syed Abdul Basit Shah	Architected materials for functional properties
11:00-11:20	Veronika Kost	Preparation of BNC nanodots and investigation of their photophysical and electrochromic properties
11:20-11:45	COFFEE	

CHAIR: Lucia Pasquato (UniTS)

11:45-12:05	Marta Gambirasi	Investigation and development of vaccine vectors for anti-tumoral immune response induction
12:05-12:25	Petr Rozhin	Towards composite hydrogels with functionalized carbon nanostructures and a self-assembling tripeptide
12:25-12:45	Deepak Dagur	Tuning of magnetoelectric coupling in multiferroic heterostructures
12:45-13:05	Claudio Lentini Campallegio	Charge dynamics in complex 2D heterostructures
13:05-13:25	Emanuele Giuliani	Assessment of a new synthetic strategy to prepare CDs with an infrared (IR) laser-mediated heater
13:25-15:25	LUNCH	

CHAIR: Alberto Morgante and Alessandro Baraldi (*Delegate for Research and PhD of the University of Trieste*)

	"FERNANDO TOMMASINI" AWARD
15:25-15:45	"ALESSANDRO DE VITA" AWARD
	"BEST CAREER "AWARD
	Closing remarks