GRAPHENE FLAGSHIP DIVISION II SYMPOSIUM

GRAPHENE & 2D MATERIALS IN HEALTH & ENVIRONMENT, MEDICINE & SENSING

HEALTH & ENVIRONMENT

BIOMEDICAL TECHNOLOGIES

SENSORS

Accademia dei Lincei,
Palazzo Corsini
Rome, Italy

26-28 April 2023

The Symposium aims to celebrate the achievements and completion of the Graphene Flagship Division II (Health, Medicine, Sensors) and will take place back in Rome, Italy, where we all embarked upon this journey.

COME TOGETHER TO CELEBRATE OUR ACHIEVEMENTS WHERE IT ALL STARTED

- Keynote speakers
- Oral & Poster presentations
- Gala dinner

Funded by the European Union

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Graphene Flagship: Symposium on

Graphene & 2D Materials in Health & Environment, Medicine & Sensing

Accademia dei Lincei, Palazzo Corsini, Rome

Day One: Wednesday 26th April

12:00–13:00	**LUNCH**
13:00-13:15	**Welcome Talk** ***10 years of Graphene Flagship*** **Maurizio Prato**
13:15-14:00	**Keynote Presentation I** ***Chair: Kostas Kostarelos*** **From graphene powders to graphene-containing medical devices: a biocompatibility and hemocompatibility journey** **Inês C. Gonçalves** *i3S – Instituto de Investigação e Inovação em Saúde* *INEB – Instituto Engenharia Biomédica* *Porto, Portugal*
14:00-15:30	**Oral Presentations: Session One** ***Chair: Kostas Kostarelos*** • ***Cyrill Bussy*** *WP4 (UNIMAN): The in vivo journey and impact of 2D materials* • ***Raivo Jaaniso*** *WP6 (UTARTU): Graphene-based materials for E^2-nose* • ***Cecilia Wetzl*** *WP5 (CIC Biomagune): The importance of chemical modification in graphene-based biosensor development*
15:30-16:00	**COFFEE**
16:00-17:00	**Poster Presentation Flash Talks** ***Chair: Julie Zhang***
17:00-18:00	**Poster Session**
18:00	**CLOSE**

Day Two: Thursday 27th April

09:00-10:30	**Oral Presentations: Session Two** ***Chair: Alberto Bianco*** • ***Bengt Fadeel*** *WP4 (KI): Exploring the interactions between graphene & other 2D materials and the immune system* • ***Julie Zhang*** *WP5 (Sorbonne): Graphene electrodes for vision* • ***Kangho Lee*** *WP6 (UniBwM) 2D materials for sensor applications*
10:30-11:00	**COFFEE**
11:00-12:00	**Keynote Presentation II** ***Chair Alberto Bianco*** ***Graphene-based materials: the key to shorten the path toward spinal cord regeneration?*** **Paula Marques** *TEMA & Mechanical Engineering Department (DEM)* *University of Aveiro,* *Aveiro, Portugal*
12:00-13:00	**LUNCH**
13:00-15:00	**Oral Presentations: Session Three** ***Chair: Laura Ballerini*** • ***Peter Wick*** *WP4 (EMPA): What do cells and tissues inform us about the safe use of graphene and graphene related materials* • ***Eduard Masvidal*** *WP5 (ICN2): Graphene-FET devices for neurophysiology: the flagship developments* • ***Sandra Vranic*** *WP4 (UNIMAN): Dynamic interactions, intracellular fate and cellular responses to Graphene Oxide: from two-dimensional in vitro models to human lung organoids* • ***Blaise Yvert*** *WP5 (INSERM): Characterization of graphene neural probes: from in vitro to preclinical stages*
15:00-15:30	**COFFEE**
15:30-17:00	**Poster Presentation Flash Talks** ***Chair: Eduard Masvidal***
17:00-18:00	**Poster Session**
18:00	**CLOSE**

Day Three: Friday 28th April

09:00-10:30	**Oral Presentations: Session Four** ***Chair: Bengt Fadeel*** • ***Elisabetta Colombo & Fabio Benfenati*** *WP5 (IIT): Hybrid graphene-based organic devices for visual restoration* • ***Ester Vázquez*** *WP4 (UCLM): Sustainable production of 2D materials for biological applications* • ***Elisabet Prats*** *WP5 (CIBER) Graphene functionalization in field effect transistors: Towards biosensing in neural interfaces*
10:30-11:00	**COFFEE**
11:00-12:30	**Oral Presentations: Session Five** ***Chair: Elisabetta Colombo*** • ***Marco Pelin*** *WP4 (UniTs): Hazard characterization of graphene-related materials after cutaneous exposure* • ***Taygun Duvan*** *WP5 (ICN2): From Graphene Oxide to Neurons: The Evolution of Porous Microelectrode Arrays for Building Enhanced Neural Interfaces* • ***Emmanuel Flahaut*** *WP4 (CIRIMAT): Environmental impact of GO and its reduced forms on the aquatic compartment: a safer-by-design approach*
12:30-13:30	**LUNCH**
13:30-14:30	**Keynote Presentation III** ***Chair: Serge Picaud*** ***Graphene-based electrodes for interfacing the peripheral nerve*** **Xavier Navarro** *Institut de Neurociències* *Facultat de Medicina* *Universitat Autònoma de Barcelona (UAB)* *Barcelona, Spain*
14:30-15:30	**Oral Presentations: Session Six** ***Chair: Serge Picaud*** • ***Rob Wykes*** *WP5 (UCL): Application of Graphene micro-transistor arrays to investigate the impact of 'brain tsunamis' to paroxysmal neurological disorders.* • ***Laura Ballerini*** *WP4 (SISSA**): GBM properties and their effects in neurobiology: from safety assessment to biomedical opportunities*
15:30-16:00	**COFFEE**

16:00-17:00	**Oral Presentations: Session Seven** ***Chair: Maurizio Prato*** • ***Maria Ruiz*** *WP5 (IBN) Path to clinical translation of Graphene micro-electrocorticography array for brain mapping in neuro-oncology* • ***Fabio Candotto*** *WP4 (UniTs): Environmental impact and fate of GRMs: an overview from the WP4 work on plants and fungi*
17:00-17:15	**Natalie Cotterell** **Development Editor, *Royal Society of Chemistry*** *Special Themed Collection on Graphene and 2D Materials in Healthcare to be published across Nanoscale Horizons, Nanoscale and Nanoscale Advances*
17:15-17:30	**CLOSE: Kostas Kostarelos**

Poster Presentation Flash Talks

Wednesday 26th April

Presenter	Poster Title
Alodia Lacueva Aparicio	*Development and validation of an organ-a-chip model for graphene toxicity assays*
Antoine Sallustrau	*In vivo biodistribution of graphene-based nanomaterials using carbon-14*
Daman Rathore	*Imaging through graphene microtransistors: an investigation of paroxysmal disorders in awake mice.*
Enrique Fernández Serra	*Graphene microtransistors for multimodal electrophysiology recording*
Govind Gupta	*Exploring subchronic exposure and effects of 2D-hexagonal boron nitride in healthy versus asthmatic human lung 3D cell model*
Hazel Lin	*Impact of industrially-made MoS2 on human basophils*
Kate Hills	*Inductively powered graphene microtransistors for wireless recording in freely moving animals.*
Martin Lind	*Semi-quantitative classification of reducing gases with graphene-based multipixel gas sensor*
Paniz Vafaei	*Graphene/TiO nanostructures integrated with micro-light-plates for NO detection.*
Samuel Flaherty	*Graphene micro-transistor arrays: A new tool for investigating the impact of spreading depolarisations in the post-stroke brain*
Sergi Brosel Oliu	*Graphene solution gated field-effect transistors (gSGFETs) for biosensing applications*

Thursday 27th April

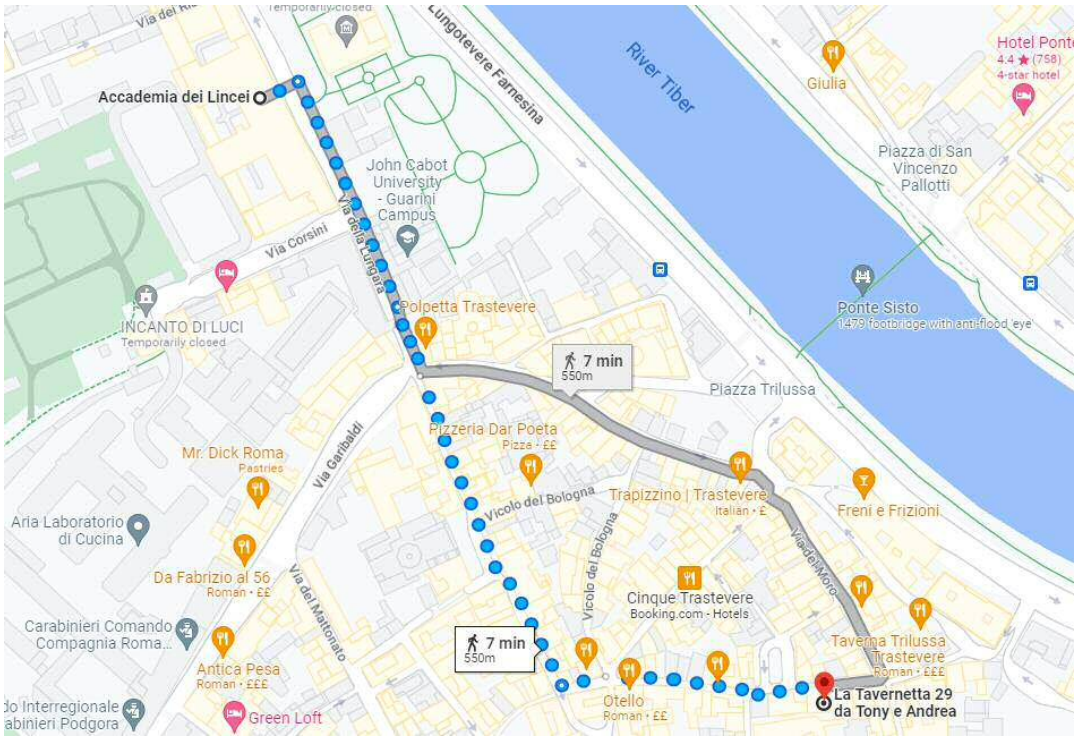
Presenter	Poster Title
Marie Lion	*Cortical dynamics underlying vocal production: a comparison between humans and minipigs*
Mario Durán-Prado	*Graphene related materials affect the metabolism and function of human skin cells.*
Marta Delga Fernandez	*Towards a universal biosensing platform based on graphene/pyrene surfaces for neurotransmitters.*
Michela Carlin	*Safety assessment of graphene-related materials at the skin level*
Anne Quesnel-Hellmann	*Serotonin nanopipettes validation ex vivo*
Samuel Flaherty *(on behalf of Ahmed Eladly)*	*Mechanically-flexible, graphene-based, microelectrodes for simultaneous recording and electrical stimulation of deep brain microstructures*
Sebastian Klenk	*Biosignal detection using 2D carbon based skin electrodes*
Simona Francia	*Hybrid graphene-based organic devices for visual restoration*
Sonia Garcia Carpintero	*Setting up the micronucleus assay for reliable estimation of genotoxicity of graphene and other 2D materials*
Lieselot Deleye	*Interaction of graphene oxide and few-layered graphene with sensory neurons of the dorsal root ganglia*
Valentina Castagnola	*Interactions of graphene-based materials with the blood-brain barrier*
Viviana Jehová González Velázquez	*Easy and versatile synthesis of bulk quantities of highly enriched 13C-graphene materials for biological and safety applications*
Nathalia Cancino Fuentes	*Quantification of endogenous and exogenous electric fields using graphene microtransistors (gSGFETs) for recording infra-slow brain activity.*
Giada Caorsi	*Applicability of the OECD test Guideline 201 to graphene-related materials (GRMs)*
Glòria Garcia Ortega	*Complexation of neuropeptide Y onto s-GO as drug nanocarrier for central nervous system application*
Jasreen Kaur	*Toxicological evaluation of 2D material-enabled composites using human cell lines: first harvest of results*

Gala Dinner

The Gala Dinner will be held at **La Tavernetta 29 da Tony e Andrea**, Via della Pelliccia, 29a, 00153 Roma.

The Gala Dinner will start at **19:30**.

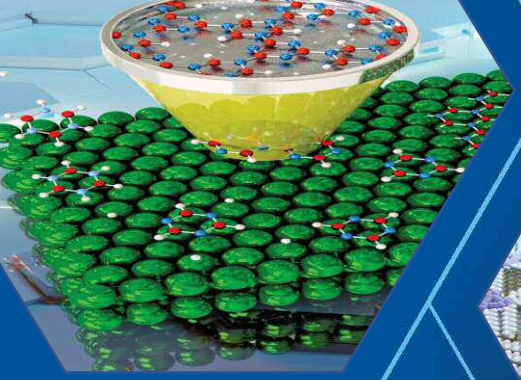
Directions to La Tavernetta 29 da Tony e Andrea from Accademia dei Lincei

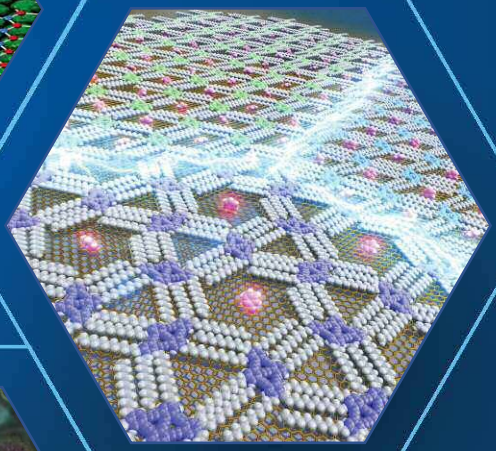


Accademia dei Lincei
Via della Lungara, 10 /230, 00165 Roma RM, Italy

- Walk north-east towards Via della Lungara
  17 m
- Turn right onto Via della Lungara
  140 m
- Continue onto Via di Porta Settimiana
  31 m
- Turn right onto Via Garibaldi
  3 m
- Turn left onto Via della Scala
  200 m
- Turn left onto Vicolo del Cinque
  28 m
- Continue straight onto Via della Pelliccia
  Destination will be on the right
  120 m

La Tavernetta 29 da Tony e Andrea
Via della Pelliccia, 29a, 00153 Roma RM, Italy





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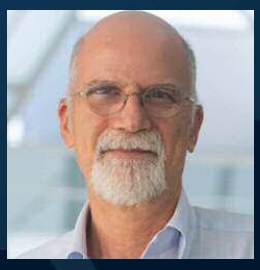
GRAPHENE AND 2D MATERIALS IN HEALTHCARE

Guest Edited by

Prof Laura Ballerini

Dr Alberto Bianco

Prof Kostas Kostarelos



Prof Maurizio Prato

SUBMIT YOUR WORK BY 31 JULY

Find out more here: bit.ly/40R0Ke3