Tentative Program (as of 04/10/2021)

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Monday October 04, 2021 – Plenary session

08:30-09:00	**Registration**	
09:00-09:45	**Opening Ceremony**	
09:45-10:30	**Andrea Ferrari** (Cambridge University/CGC, UK) Layered Quantum Materials: A New Platform for the Next Digital Revolution	P
10:30-11:30	***Welcome Coffee Break / Poster Session***	
11:30-12:00	**Jordi Arbiol** (ICREA-ICN2, Spain) Nanowires (R)Evolution: from VLS vertical nanostructures to SAG Quantum Networks	K
12:00-12:30	**Francesco Bonaccorso** (Bedimensional, Italy) Latest developments in the production of 2D crystals	K
12:30-12:45	**Miguel Vilaplana** (graphenicalab, Spain) Real applications for Graphene-based sensors and Flexible Electronics	O
12:45-13:00	**Marinela Barci** (Huawei, Belgium) Resistive Memories for automotive applications	O
13:00-14:30	***Welcome Lunch***	
14:30-15:00	**Sibel A. Ozkan** (Ankara University, Turkey) An Overview of Carbon Based Nanosensors and biosensors and their applications in drug assay and life sciences	K
15:00-15:20	**Suna Timur** (Ege University, Turkey) Use of Nanoparticles in Biosensor Systems, Integration with Smartphones, Applications on Different Platforms	I
15:20-15:50	**Arben Merkoçi** (ICREA-ICN2, Spain) Nanomaterials Based Biosensors for Diagnostics	K
15:50-16:50	***Coffee Break / Poster Session***	
16:50-17:10	**Fabio Di Francesco** (Università degli Studi di Pisa, Italy) A wearable sensor platform for sweat analysis	I
17:10-17:25	**Mehmet Emin Corman** (Ankara University, Turkey) ZnO nanoparticle-assisted synthesis of porous interface molecularly imprinted polymeric nanofilm for electrochemical antidepressant sensor	O
17:25-17:40	**Rebeca Magnolia Torrente Rodríguez** (Universidad Complutense de Madrid, Spain) On the road to the control and overseeing of COVID-19 diagnosis and monitoring through versatile and efficient multiplexed electrochemical biosensing tools	O

Tuesday October 05, 2021 – Plenary session

09:00-09:30	**Emmanuel I. Stratakis** (University of Crete, Greece) Photochemical doping of Graphene and Transition metal Dichalcogenides	K
09:30-09:50	**Liridon Berisha** (University of Prishtina, Albania) Electrochemical sensor for monitoring nitrites based on glassy carbon paste electrode modified with electrochemically reduced graphene oxide	I
09:50-10:10	**Chiara Zanardi** (UNIMORE, Italy) Carbon-based nanomaterials in electrochemical sensing: the role of oxidized functional groups	I
10:10-11:10	***Coffee Break / Poster Session***	
11:10-11:40	**Aitor Mugarza** (ICREA/ICN2, Spain) Graphene nanoarchitectonics: building hybrid graphene nanostructures with atomic precision	K
11:40-12:00	**Emmanuel Kymakis** (Hellenic Mediterranean University, Greece) An autonomous perovskite solar park enabled by 2D materials interface engineering	I
12:00-12:20	**Aikaterini Trompeta** (National Technical University of Athens, Greece) Tailored Growth of 1D Carbon Nanostructures via Chemical Vapour Deposition and their Application in Advanced Nanocomposite Materials	I
12:20-14:30	***Lunch***	
14:30-15:00	**Klaas-Jan Tielrooij** (ICN2, Spain) High-speed control of strong emitter-graphene near-field interactions	K
15:00-15:20	**Emigdio Chavez** (ICN2, Spain) Anisotropic thermal conductivity of layered 2D SnSe2	I
15:20-15:50	**Arpiainen Sanna** (VTT, Finland) Graphene integration for CMOS multiplexed bioassays	K
15:50-16:05	**Imer Sadriu** (University of Prishtina, Republic of Kosovo) Electrochemical MIP sensor based on pure Graphene electrode. Detection of Isoproturon	
16:05-16:30	***Coffee Break***	
16:30-17:30	**Poster session**	P

Wednesday October 06, 2021 – Plenary session

09:00-09:30	**Susana Campuzano Ruiz** (Universidad Complutense de Madrid, Spain) Translational, multiplexing and multiomics (nano)bioelectroanalytical tools: Taking on gigantic challenges towards precision medicine	K
09:30-10:00	**Anna Roig** (ICMAB, Spain) From bacteria farming to functional nanocellulose materials and devices	K
10:00-10:30	**Moran Frenkel-Pinter** (The Hebrew University of Jerusalem, Israel) Structure-function guided fabrication of biodegradable RNA-binding polymer	K
10:30-11:00	***Coffee Break / Poster session***	
11:00-11:30	**Firat Guder** (Imperial College London, UK) Low-cost Transducers Made of Fabrics	K
11:30-12:00	**Jesús Alberto Escarpa Miguel** (Universidad de Alcala, Spain) Catalytic micromotors for biomedical applications	K
12:00-12:30	**Gianni Ciofani** (Italian Institute of Technology, Italy) Smart Nanomaterials for Advanced Biomedical Applications	K
12:30-12:50	**Kreshnik Hoti** (University of Prishtina, Republic of Kosovo) Emerging applications of technologies that solve health related challenges: focus on medication adherence and pain assessment	I

Parallel Session

09:00-09:20	**Valbona Aliko** (University of Tirana, Albania) Imagery in evaluating NPs-induced apoptosis	I
09:20-09:30	**Ardita Kurtishaj** (University of Prishtina "Hasan Prishtina", Republic of Kosovo) Measurements of Helium Permeation in Zerodur glass used for the realisation of quantum pascal	O
09:30-09:50	**Kledi Xhaxhiu** (University of Tirana, Albania) The influence of order/disorder phenomena and nanoscopic defects on the thermoelectric properties of In5Ch5X (Ch = S, Se; X = Cl, Br)	I
09:50-10:00	**Sefer Avdiaj** (University of Prishtina, Republic of Kosovo) The influence of “Edge efefct” on determining the diffusion constant of Helium gas in ULE glass	O
10:00-10:20	**Bajram Berisha** (University of Prishtina, Republic of Kosovo) Nanoparticles and the ovary function: the negative effects on the follicular development and ovulation	I
10:20-11:00	***Coffee Break / Poster session***	
11:00-11:20	**Jahja Kokaj** (Scientific Education Center Cosmos & Human, Republic of Kosovo) Characterization of nanoparticles deposited on a thin film by using femtosecond pulse laser	I
11:20-11:40	**Majlinda Vasjari** (University of Tirana, Albania) Characterisations of raw material derived from natural sand of albanian coastline-possible applications	I
11:40-12:00	**Arjan Korpa** (University of Tirana, Albania) Nanomolecular structure and phase constituent quantification of multiscale UHPC using 29Si and 27Al MAS NMR, Nanoindentation and XRD techniques	I
12:00-12:20	**Fetah Podvorica** (University of Prishtina, Republic of Kosovo) Modification of material surfaces with nanometric organic layers derived from aryl diazonium salts	I
12:20-12:40	**Bashkim Ziberi** (University of Tetova, Republic of North Macedonia) Low energy ion beam induced pattern formation on Si and Ge surfaces	I
13:00-14:30	***Lunch***	

Plenary session

14:30-15:00	**Francesco Ricci** (University of Rome Tor Vergata, Italy) DNA-based nanodevices for diagnostic and drug-delivery applications	K
15:00-15:30	**Teresa Pellegrino** (IIT, Italy) Magnetic hyperthermia, chemotehrapy and radiotherapy with inorganic nanoplatforms to tackle cancer	K
15:30-15:45	**Engin Er** (Ankara University, Turkey) MoS2-Based SERS sandwich immunoassay for liver cancer biomarker detection	O
15:45-16:00	**Ledia Vasjari** (University of Tirana, Albania) Application of nanotechnology to inhibit cancer cell proliferation	O
16:00-16:15	**Kleva Shpati** (NanoAlb, Albanian University, Albania) New Approaches in Nanotechnology in pharmaceuticals forms	O
16:15-17:00	***Coffee Break / Poster Session***	
17:00-17:30	**Pablo Ordejon** (ICN2, Spain) Towards first-principles electrochemistry: Addressing electrified metal-electrolyte interfaces with DFT-NEGF	K
17:30-17:50	**Aleandro Antidormi** (ICN2, Spain) Emerging Amorphous Two-Dimensional Materials	I
17:50-18:05	**Avni Berisha** (University of Prishtina, Republic of Kosovo) Binding of alkyl radicals onto graphene - a DFT study	O
18:05-18:20	**Luca Bergamini** (CSIC-UPV/EHU and DIPC, Spain) Nanoscaled control of VO2 insulator-to-metal transition by plasmonic single-nanoantenna	O

Thursday October 07, 2021 – Plenary Session

09:00-09:30	**Massimo De Vittorio** (IIT, Italy) Implantable and wearable technologies for health monitoring and control	K
09:30-10:00	**Alireza Dolatshahi-Pirouz** (DTU, Denmark) From Tissue Engineering to Cybernetics	K
10:00-10:20	**Ariola Bacu** (University of Tirana, Albania) Emerging molecular biology-based applications at Department of Biotechnology, UOT, which may profit from the development of nanobiosensors	I
10:20-11:00	***Coffee Break / Poster Session***	
11:00-11:30	**Michal Otyepka** (Regional Centre of Advanced Technologies and Materials, Czech Republic) Graphene Derivatives for Catalysis and Energy Storage	K
11:30-12:00	**Emre Erdem** (Sabancı University, Turkey) Point Defects in Functional Nano-Materials and Their Role in Energy Storage Devices	K
12:00-14:00	***Lunch***	

Parallel Session 1 - PhD Students

14:00-14:10	**Lei Zhao** (Catalan Institute of Nanoscience and Nanotechnology (ICN2), Spain) Inkjet-printed electrochemically reduced graphene oxide microelectrode as a platform for HT-2 mycotoxin immunoenzymatic biosensing	O
14:10-14:20	**Benji Fenech-Salerno** (Imperial College London, United Kingdom) Inkjet-printed Two-Dimentional Material Biosensors on Flexible Substrates	O
14:20-14:30	**Martin Holicky** (Imperial College, United Kingdom) Graphene-based electrically conductive coatings for wearable microneedle biosensors	O
14:30-14:40	**Gabriel Maroli** (Catalan Institute of Nanoscience and Nanotechnology, Spain) NFC technology for data transmission in wearables. Can graphene be the technological solution for flexible antennas?	O
14:40-14:50	**Fabrizio Poletti** (University of Modena and Reggio Emilia, Italy) Flexible graphene-based electrodes for biosensing in wearable devices	O
14:50-15:00	**Alexandros Lazanas** (University of Ioannina, Greece) Utilization of semiconducting bismuthene, antimonene and V2O5 2D nanosheets in electrochemical sensing	O
15:00-15:10	**Merve Buldu-Akturk** (Sabanci University, Turkey) Ceramics for Supercapacitors: B4C and ZnO	O
15:10-15:20	**Aleksandra Adamczyk** (University of Fribourg, Switzerland) Controling the orientation of single fluorescent dyes using the DNA origami technique	O

Parallel Session 2 - PhD Students

14:00-14:10	**Enric Calucho Palma** (ICN2, Spain) Selection and characterization of bioreceptors to develop nanoparticle-based lateral-flow immunoassays under COVID-19 pandemic	O
14:10-14:20	**Gylxhane Kastrati** (Univerizta Pardubice, Czech Republic) Metal nanoparticles-based electrochemical immunosensors for sensitive detection of protein biomarkers	O
14:20-14:30	**Jose Marrugo-Ramírez** (Catalan Institute of Nanoscience and Nanotechnology, Spain) Inkjet-printed-based Electrochemical Approaches for Testing of SARS-CoV-2	O

14:30-14:40	**Shirong Huang** (Institute for Materials Science and Max Bergmann Center for Biomaterials, Germany) NH3 and PH3 Identification Using Graphene based Gas Sensor	O
14:40-14:50	**Luis Antonio Panes Ruiz** (TU Dresden, Germany) Breath-level detection of H2S in humid air by selective carbon-nanotube sensor arrays	O
14:50-15:00	**Xhensila Shkembi** (Universitat Rovira i Virgili, Spain) Novel aptamer development for tetrodoxin detection in puffer fish	O
15:00-15:10	**Andrea Bonini** (University of Pisa, Italy) A Label-free impedance biosensing assay based on CRISPR/Cas12a collateral activity for bacterial DNA detection	O
15:10-15:20	**Grégoire Le Brun** (UCLouvain, Belgium) New phage-protein biointerfaces for electrochemical paper-based bacteria sensors	O
15:20-16:20	***Coffee Break / Poster Session***	

Plenary session

16:20-16:40	**Mamas Prodromidis** (University of Ioannina, Greece) Generation of nanoparticles by spark discharge: In-situ tailoring of the electrode surface with a 3D positioning device	I
16:40-17:00	**Ondřej Zítka** (Mendel University in Brno, Czech Republic) A novel technology for automatic testing of the screen printed electrodes	I
17:00-17:30	**Henning Zoz** (Zoz Group, Germany) Zentallium® (Al-CNT), PM2000 (19YAT), PM2018 (14YWT) and PM2019 (Ti-SiC), large scale manufacturing, applications	K
17:30-17:45	**Alexey Krasnoslobodtsev** (University of Nebraska Omaha, United States) Hybrid functional nano-assemblies of fluorescent silver nanoclusters	O
17:45-18:00	**Albana Ndreu Halili** (Aleksander Moisiu University, Albania) Production of electrospun zeolite-incorporated nano-microfibers from recycled PET	O
18:00-18:15	**Albenc Nexha** (University Rovira i Virgili, Spain) Ex-vivo antioxidant yttrium oxide nanoagents	O

Friday October 08, 2021 – Plenary Session

09:00-09:30	**Samo Hocevar** (National Institute of Chemistry, Slovenia) Electroanalysis with metal (nano) film electrodes	K
09:30-10:00	**Can Dincer** (University of Freiburg – IMTEK, Germany) CRISPR-powered electrochemical nucleic acid testing	K
10:00-10:20	**Ciara O´Sullivan** (ICREA / Universitat Rovira i Virgili, Spain) Multiplexed detection of single nucleotide polymorphisms via solid-phase primer elongation with ferrocene labelled nucleotides	I
10:20-11:20	***Coffee Break / Poster Session***	
11:20-11:50	**Lucia Curri** (University of Bari "A. Moro" / CNR, Italy) Colloidal Nanoparticles Decorated Graphene based Materials: New Functional Nanocomposites	K
11:50-12:10	**M. Teresa Fernández Abedul** (Universidad de Oviedo, Spain) Title to be defined	I
12:10-12:40	**Nunzio Denora** (Università degli Studi di Bari Aldo Moro, Italy) Nano delivery systems for imaging and treating pathological disorders overexpressing TSPO.	K
12:40	***Closing & TNT2022 announcement***	

Monday October 04, 2021

Workshop

Medical doctors meet nanotechnologists: recent trends in nanotheranostics

14:30-14:45	**Welcome and Introduction** *Chairs: Prof. Dr. Arben Merkoci & Prof. Dr. Jonel Trebicka*
	Plenary Session with 3 key topics: Clinical Problem, Diagnostic & Therapeutics
14:45-15:15	**Liver cirrhosis: a silent killer** Prof. Dr. Vicente Arroyo
15:15-15:45	**Fibrotic diseases: a major health problem** Prof. Dr. Aleksander Krag
15:45-16:15	**Gut-liver axis as diagnostic approach** Prof. Dr. Jasmohan Bajaj
16:15-16:45	**Coffee break and networking**
16:45-17:15	**Omics technologies as standard of care** Prof. Dr. Christophe Junot
17:15-17:45	**Molecular targeting for diagnostics & therapeutics** Prof. Dr. Klaas Poelstra
17:45-18:15	**In-vivo Theranostics: when are we approaching the clinics?** Prof. Dr. Twan Lammers
18:15-18:30	**Concluding remarks** Prof. Dr. Arben Merkoci
18:30	*End of the Workshop*

TNT2021 SCHOOL OF NANOBIOSENSORS, TIRANA, ALBANIA

Tirana, Albania October 5, 2021

9:00 – 9:15: Arben Merkoçi – Welcome to the School on Nanobiosensors

9:15 – 9:50: Daniel Quesada – A look through Rapid Diagnostics Tests (lateral flow tests)

What are rapid diagnostic tests? How do they work? For what are rapid diagnostic tests being applied (e.g. SARS-CoV2).

9:50 – 10:25: Claudio Parolo – The Collaboration Between Developers and Clinicians

How to optimize collaborations between developers and clinicians? What is missing?

10:25 – 11:00: Stefano Cinti (virtual) – Paper-based electrochemical (bio)sensors: how?

The talk is aimed to provide general basis regarding the development of paper-based electrochemical strips for multiple applications. The pros and cons of each paper-based substrate will be provided, including the most diverse possibilities in merging different substrates for obtaining smart 2D and 3D platforms with improved performance.

11:00-11:30 *– Coffee Break* + Special session for young students

Part 1 – Introduction to Nanotechnology. *What is a nanomaterial? Nanobiosensors? Experiment: gold aggregation test.* Daniel Quesada and Ruslán Álvarez.

11:30 – 12:30: Fabiana Arduini (virtual) – Carbon black as an outstanding and affordable nanomaterial for electrochemical (bio)sensor design

Carbon is present in several allotropic forms ranging from graphite to diamond, till the most recently discovered fullerene, nanotubes, and graphene. In recent years, another interesting carbonaceous nanomaterial is becoming utterly interesting, due to its excellent conductive and electrocatalytic properties: Carbon Black.

12:30 – 13:05: Ruslán Álvarez – Demonstration of different portable nanosensing platforms with optical and electrochemical readout.

Inexpensive, fast and easy-to-use point-of-care detection systems are in demand for application in different fields. We will demonstrate that graphene and other nanomaterials can be used in combination with a smartphone to develop this kind of devices. Different sensing platforms will be shown during this tutorial session.

13:05 – 13:40: Giulio Rosati – Inkjet printing for ubiquitous ultra-fast and low cost electrochemical biosensors fabrication

Biosensors fabrication should guarantee high performances and reliability, low variable costs and possibly low investment. Furthermore, the recent pandemic showed us the increasing need of decentralized (virtually ubiquitous) production. Inkjet printing with nanofunctional inks and office-like equipment have these characteristics, as will be showed in this tutorial.

13:40 – 15:30 *– Lunch and roundtable session* + Special session for young students (30 min)

Part 2 – Demonstration of different portable nanosensing platforms with optical and electrochemical readout. *We will demonstrate that graphene and other nanomaterials can be used in combination with a smartphone to develop nanosensing devices. Different sensing platforms will be shown during this tutorial session*. Ruslán Álvarez and Daniel Quesada.

15:30 – 16:05: Mary Zeng – Business Development Manager for European Market

Common equipments for the later flow production at different stages and operations to maximise the business success

16:05 – 16:40: Baojun Wang (virtual) - Synthetic cell-based and cell-free biosensors for toxins and pathogens in resource limited settings

The tutorial will introduce the principles, latest progress and challenges in developing synthetic biology enabled cell-based and cell-free biosensors for environmental toxins and pathogens.

16:40 – 17:15: Andrea Idili (virtual) - Real-time, continuous monitoring of clinically relevant molecules via electrochemical aptamer-based sensors

The tutorial will describe the general concepts behind the fabrication and the characterization of electrochemical aptamer-based (EAB) sensors, and their next use to achieve real-time measurements of clinically relevant targets directly in living animals.

17:15 – 17:50: Joseph Wang, Plenary Speaker (virtual) - Wearable Electrochemical Sensors for Improved Management of Diabetes

This presentation will describe various wearable electrochemical sensing platforms for monitoring glucose and other key diabetes biomarkers in different biofluids towards improved management of diabetes.

2d Workshop

NANOTECHNOLOGIES FOR 21st CENTURY

COOPERATION EVENT BETWEEN ALBANIA, JAPAN AND SPAIN

Tirana, Albania October 7, 2021

9.00-9:15 **Welcome, Organizers & Representatives from the Embassies of Japan and Spain in Tirana**

Spain

9.15-9:35 Prof. Pablo Ordejon (ICN2, Barcelona) “Research and Innovation at the Catalan Institute of Nanoscience and Nanotechnology”
9.35-9:55 Prof. Stephan Roche (ICN2, ICREA, Barcelona) “The Universe of Disordered and Amorphous Two-dimensional Materials: Scientific Challenges & Technology Opportunities”
9.55-10:15 Prof. Jose Garrido (ICN2, ICREA, Barcelona), Title to be defined
10.15-10:35 Prof. Jordi Sort (ICREA, UAB, Barcelona) “Magneto-ionic ON-OFF switching of ferromagnetism: challenges and prospects"
10.35-10:55 Prof. Aitor Mugarza (ICN2, Barcelona) “Tailoring electronic and magnetic properties with molecular strategies: from ligand chemistry to covalent nanoarchitectures”
10.55-11:05 Prof. Miguel Vilaplana (GraphenicaLab, Barcelona) “Why should Business Angels & Venture Capital invest in Nanotechnology?”
11.05-11:25 Prof. Arben Merkoçi (ICN2, Barcelona) “Collaboration opportunities ICN2, NanoAlb, Japan.”

11.25-11:45 Coffee break

Japan

11:45-12:05 Prof. Yasuaki Einaga (Keio University) "Recent development on electrochemical application of boron-doped diamond electrodes”
12.05-12:25 Prof. Yuta Nishina (Okayama University), "Chemical and electrochemical exfoliation of graphite in a large scale"
12.25-12:45 Prof. Yuya Oaki (Keio University) "Layered conjugated polymers with stimuli-responsive color-change properties"
12.45-13:05 Prof. Kazuya Nakata (Tokyo University of Agriculture and Technology) "Photocatalytic Generation of Solar Chemicals"
13.05-13:25 Dr. Andrea Fiorani (Keio University) "Electrochemiluminescence application of boron-doped diamond electrodes"
13.25-13:45 Yunita Triana (Keio University) "Electrochemical gas sensing by BDD electrodes"

13.45-14:30 Lunch

Albania

14.30-14:50 Prof. Fetah Podvorica (NanoAlb, Prishtina University) “Modification of the surfaces of materials with functional organic layers”
14.50-15:10 Prof. Kreshnik Hoti (NanoAlb, Prishtina University) “Emerging applications of technologies that solve health related challenges: focus on medication adherence and pain assessment”
15.10-15:30 Prof. Albana Ndreu (NanoAlb, Epoka University) “Polymer-based Nano/microfibers for Hard Tissue Engineering Applications”
15.30-15:50 Prof. Valbona Aliko (NanoAlb, University of Tirana) “Comprehensive Understanding of Bio-nano Interactions-A challenge for future applications of nanoparticles in medicine”
15.50-16:10 Prof. Kledi Xhaxhiu (NanoAlb, University of Tirana) “Influence of the pH on the stability of CdTe QDs investigated by fluorescence and particle size analyses”
16.10-16:30 Prof. Majlinda Vasjari (NanoAlb, Univ. of Tirana) “Development of electrochemical imunosensors based on CPE modification"
16.30-16:50 Prof. Arjan Korpa (NanoAlb, Univ. of Tirana) “Functionalised, nanostructured multiscale cementitious materials”
16:50-17:10 Mr. Robert Dumi (Director, National Agency of Scientific Research and Innovation, Tirana) “Albania vs. European Frame Work Programs (FP7, H2020, HEU)”.

Round table/discussions/Closure of the workshop