

FINAL PROGRAM

8TH NANO BOSTON CONFERENCE


October 31-November 01, 2022 | Hybrid

Timezone: Local Time Boston (UTC-4)

Boston Marriott Newton Hotel
2345 Commonwealth Avenue Newton, MA

November 02, 2022 | Online - Zoom

Timezone: Local Time Paris, CET (UTC+1)

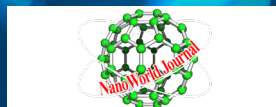
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Customers include universities and other organizations involved in various fields of nanotechnology research and materials science – as well as industrial and medium-sized enterprises that use nanotechnology for specific product applications or produce compound semiconductors.

Founded in 1980 and headquartered in Dortmund, Germany, Raith employs more than 250 people. The company works as closely as possible with customers in the most important global markets through subsidiaries in the Netherlands, the USA, and Asia and through an extensive partner and service network.

Web Link: <https://raith.com/>

Join Zoom Meeting:<https://us06web.zoom.us/j/89988574109?pwd=MGhKbkNOdGx3ZzZnMTkxBUUZKY3hNQTO9>**Meeting ID:** 899 8857 4109**Passcode:** 950942**Meeting Room: Charles River Room**

08:00 On-site Registration and Conference Material Distribution

08:25 Introduction and Opening Remark

Plenary Talks (Each Talk 40 Minutes + 5 Minutes Q&A)**Moderator:** Doga Kavaz, Cyprus International University, North Cyprus08:30 **Impact of Nanobiotechnology on the Future of Medicine: The Road from Nanomedicine to Precision Medicine – Case Studies**

Shaker A. Mousa, Albany College of Pharmacy and Health Sciences, NY

09:15 **The Dynamic, Motile and Deformative Properties of RNA Nanoparticles Lead to Efficiency Tumor Vasculature Targeting, Fast Renal Excretion and Rapid Body Clearance**Peixuan Guo, The Ohio State University, OH - **Online**10:00 **COFFEE BREAK**

@ Foyer Area

Session: NANO IN LIFE SCIENCES AND MEDICINE**Chair:** Shaker A. Mousa, Albany College of Pharmacy and Health Sciences, NY**Invited Talks (Each Talk 20 Minutes + 5 Minutes Q&A)**10:20 **Clusters of Catalytic Nanocompartments for Complex Cascade Reactions: Application in Biomedicine**

Cornelia G. Palivan, University of Basel, Switzerland

10:45 **Long Acting Slow Effective Release Antiretroviral Therapy**Howard E. Gendelman, University of Nebraska Medical Center, NE - **Online**11:10 **Cancer Nanotherapeutics: Combination of Nanoparticles with Current Anticancer Drugs to Overcome the Challenges in Current Radiotherapy**Devika B Chithrani, University of Victoria, Canada - **Online****Featured Presentations (Each Presentation 15 Minutes + 5 Minutes Q&A)**11:35 **Molecular Mechanism of GPCR Signal Transduction - Filtering the Good from the Bad**

Meng Zhang, Harvard University-Harvard Medical School, MA

11:55 **Cell Mechanobiology Regulates Bio-nano Interactions in Cancer Cells**

Marco Cassani, St. Anne's University Hospital, Czech Republic

12:15 **Transforming the Chemical Structure and Bio-Nano Activity of Doxorubicin by Ultrasound for Selective Killing of Cancer Cells**

Soraia Fernandes, St. Anne's University Hospital, Czech Republic

12:35 **Secondary Metabolites in Functionalized Titanium Dioxide (TiO₂) Nanoparticles Applied in Disinfectants and Antiseptics, Efficacy Against Viruses, Bacteria and Fungi**Gabriela Leon, Inmolecule International Ltd., Mexico - **Online**

12:55 **Molecular Frontiers in Drug Delivery**
Arturo Vegas, Boston University, MA

13:15 **LUNCH BREAK** @ Salon A, B

Session: NANOTECHNOLOGY IN ENERGY AND SUSTAINABILITY

Chair: Liqiu Wang, The University of Hong Kong, Hong Kong

Keynote Talk (35 Minutes + 5 Minutes Q&A)

14:20 **Battery Electrodes: Nano vs Micro-structuring**
Nikhil Koratkar, Rensselaer Polytechnic Institute, NY

Invited Talks (Each Talk 20 Minutes + 5 Minutes Q&A)

15:00 **Ceramics Nanocomposite Materials for Novel Energy Harvesting and Cooling Technologies**
Zdravko Kutnjak, Jozef Stefan Institute, Slovenia

15:25 **Sustainable Synthesized Nano Silica Enhancers for Effective Maximization of Mechanical Performance of Concrete**
Doga Kavaz, Cyprus International University, North Cyprus

15:50 **Functionalized Nanodiamond Heat Transfer Fluids in Manufacturing Energy Efficiency Improvements**
Ethan Languri, Tennessee Tech University, TN - **Online**

Featured Presentation (15 Minutes + 5 Minutes Q&A)

16:15 **In-situ Observation of Electron-beam-induced Formation of Nano-structures in Lead Chalcogenides PbTe, PbSe and PbS**
Simon Paul, Max Planck Institute for Chemical Physics of Solids, Germany - **Online**

Emerging Researcher Presentations (Each Presentation 10 Minutes + 5 Minutes Q&A)

16:35 **Remediation of Per- and Polyfluorinated Substances (PFAS) from Water via Functionalized Nanoparticles**
Victoria Schmidt, Friedrich-Alexander University Erlangen-Nuremberg, Germany

16:50 **Smart Rust to Clean Water from Molecular Pollutants**
Lukas Mueller, Friedrich-Alexander University Erlangen-Nuremberg, Germany

17:05 **Waste2: Magnetic Water Remediation of Nano-polyethylene Across Different Length Scales and its Upcycling as an Oil Sorbent**
Henrik Gass, Friedrich-Alexander University Erlangen-Nuremberg, Germany

- P-1 **Biomimetic Nanoparticle-based Host-directed Therapy for the Eradication of *Mycobacterium tuberculosis***
Su-Mari Du Plessis, Stellenbosch University, South Africa
- P-2 **Nanoparticle-based Host-directed Therapies for Eradication of *Mycobacterium tuberculosis* in the C₃HeB/FeJ Mouse Model**
Zimvo Obasa, Stellenbosch University, South Africa
- P-3 **Prediction of Self-assembly Morphology of Amphiphilic Molecules by Combining Molecular Simulation and Machine Learning Through Packing Parameters**
Yuki Ishiwatari, Keio University, Japan
- P-4 **Simulation of Physical Properties of Crosslinked Rubber Structures Independent of Semi-empirical Parameters Focusing on the Average Molecular Weight Between Crosslinks**
Takumi Sato, Keio University, Japan
- P-5 **Self-assembly and Mechanical Properties of Polymer Nanocomposites Filled with Patchy Particles**
Yusei Kobayashi, Keio University, Japan
- P-6 **Curvature Effect of Gold Nanoparticles Alters the Exposure of Amyloid- β^2 and Modulates its Aggregation Process**
Andreas Tapia-Arellano, Metropolitan Technological University, Chile
- P-7 **Trace Atrazine Detection in Drinking Water via Silver Nanoparticles-enhanced Raman Spectroscopy**
Jasmine Zhang, Lexington High School, MA
- P-8 **SERS-based Detection of Alzheimer's Disease Biomarker**
Shiqi Min, Walnut Hill School for the Arts, MA
- P-9 **An Early Diagnosis Method for Melanoma Using Tyrosinase as its Biomarker Through SERS with Silver Nanoparticles**
Esther Xu, Belmont High School, MA

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<https://us06web.zoom.us/j/89988574109?pwd=MGhKbkN0dGx3ZzZnMTkxBUUZKY3hNQOT09>

Meeting ID: 899 8857 4109

Passcode: 950942

Meeting Room: Charles River Room

08:50 Introduction and Day 2 Opening Remarks

Plenary Talk (40 Minutes + 5 Minutes Q&A)

Moderator: Cornelia G. Palivan, University of Basel, Switzerland09:00 **Light or Fiber Touch**
Liqiu Wang, The University of Hong Kong, Hong Kong

Keynote Talk (35 Minutes + 5 Minutes Q&A)

09:45 **Low-dimensional Nanostructures: Design, Behavior, and Surprises**
David Tomanek, Michigan State University, MI - **Online**10:25 **COFFEE BREAK** @ Foyer Area

Session: NANOMATERIALS: CHARACTERIZATION, METHODOLOGIES AND RESEARCH ADVANCEMENTS

Chair: Cornelia G. Palivan, University of Basel, Switzerland

Invited Talks (Each Talk 20 Minutes + 5 Minutes Q&A)

10:45 **Next Generation Platform for Characterization and Purity Scoring for Nanomaterials**
Rodney Sappington, Epic Advanced Materials, CA11:10 **Nanofluidics in a Transmission Electron Microscope**
Kristian Molhave, Technical University of Denmark, Denmark - **Online**11:35 **Multilayer [60]Fullerenyl Core-Shell γ -FeOx@Au Nanoparticles on Graphene Nanosheets with Enlarged Photoswitchable Dielectric Properties**
He Yin, University of Massachusetts Lowell, MA

Featured Presentations (Each Presentation 15 Minutes + 5 Minutes Q&A)

12:00 **Effect of the Geometry of Gold Nanoparticles in the Interaction with Plasma Proteins by Microfluidic Devices**
Natalia Hassan, Metropolitan Technological University, Chile12:20 **Amphiphilic Comb Polymer Additives to Bicontinuous Microemulsions**
Henrich Frielinghaus, Research Center Juelich GmbH, Germany - **Online**12:40 **Active Reduction of p-nitrophenol by Silver Nanoparticle on Fe₃O₄/ATO Nanocomposite**
Hem Prakash Karki, Korea University, South Korea

Emerging Researcher Presentation (10 Minutes + 5 Minutes Q&A)

13:00 **Enhancement of Transformer Oil Heat Transfer Characteristics via Functionalized Nanodiamond Additives**
Miles C Nevills, Tennessee Tech University, TN13:15 **LUNCH BREAK** @ Salon A, B

Session: NANO-ELECTRONICS & PHOTONICS

Chair: Doga Kavaz, Cyprus International University, North Cyprus

Keynote Talk (35 Minutes + 5 Minutes Q&A)

14:05 **Oxide Nanostructures for Electronics and Energy Applications**
Rodrigo Martins, New University of Lisbon, Portugal - **Online**

Invited Talks (Each Talk 20 Minutes + 5 Minutes Q&A)

14:45 **Liquid-crystal Based Caloric Materials for New Heat-management Technologies**
Brigita Rozic, Jozef Stefan Institute, Slovenia

15:10 **Current and Future of Red and Black Phosphorus Nanomaterials**
Haifeng (Frank) Ji, Drexel University, PA - **Online**

15:35 **VELION – a Novel FIB-SEM Instrument Concept for Nanoscale Science and Engineering**
Yang Yu, Raith America, Inc., MA

16:00 **Manipulating Interlayer Magnetic Orders of 2D Magnets by Stacking Rotation**
Liangbo Liang, Oak Ridge National Laboratory, TN - **Online**

Featured Presentations (Each Presentation 15 Minutes + 5 Minutes Q&A)

16:25 **Process Optimization of Rapid Thermal Alloyed Collector Metals Layer in Compound Semiconductor Devices**
Stephanie Y Chang, Skyworks Solutions, Inc., CA

16:45 **Fast Gas Sensing Using Surface Acoustic Wave Based PEDOT: PSS Conductive Polymer**
Bilel Hafsi, Institute of Electronics, Microelectronics and Nanotechnology (IEMN), France

Emerging Researcher Presentation (10 Minutes + 5 Minutes Q&A)

17:05 **Impedance Analyzer Based AD5933: Environment Monitoring Through the Detection of Complex Gas Mixtures with Chemosensors**
Louis Routier, Catholic Institute of Arts and Crafts, France

17:20 **Coffee and Networking**

@ Foyer Area

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08:50 Introduction and Day 3 Opening Remarks

Chair: Vishal Sharma, Cluster University of Jammu, India**Keynote Talks (Each Talk 35 Minutes + 5 Minutes Q&A)**09:00 **Identification of Semiconducting Nanomaterials Using Energy-resolved Distribution of Their Electron Traps: A Novel Concept for True Design of Materials**

Bunsho Ohtani, Hokkaido University, Japan

09:40 **Synthesis and Characterization of Metal (Cu, Mn and Fe) -Doped ZIF-8 Metal Organic Framework for Supercapacitor Applications**

Ayten Ates, Sivas Cumhuriyet University, Turkey

Online Session: NANO IN LIFE SCIENCES AND MEDICINE**Invited Talk (20 Minutes + 5 Minutes Q&A)**10:20 **Molecular Engineering to Manipulate Cellular Uptake of Rhodamine for High-contrast Discrimination of Cancer Cells**

Lin Yuan, Hunan University, China

E-posters (Each Presentation 7 Minutes + 3 Minutes Q&A)10:45 **Enhanced Penetration Efficacy of Ferromagnetic Nanoparticles Loading Minocycline Against Periodontal Biofilms**

Hongmeng Cheng, Affiliated Stomatological Hospital of NanChang University, China

10:55 **Ethosomal Formulations Enriched with Skin Permeation Enhancers for Transdermal Delivery**

Kristyna Dvorakova, University of Chemistry and Technology Prague, Czech Republic

11:05 **Innovative Cerosomes as Carriers for an Enhanced Dermatoses' Therapy**

Aneta Vovesna-Kalvodova, University of Chemistry and Technology Prague, Czech Republic

11:15 **Evaluation of Direct Grafting Strategies in Expansion Microscopy**

Gang Wen, KU Leuven, Belgium

**Online Session: NANO-ELECTRONICS & PHOTONICS
NANOMATERIALS: CHARACTERIZATION, METHODOLOGIES AND RESEARCH
ADVANCEMENTS****Invited Talks (Each Talk 20 Minutes + 5 Minutes Q&A)**11:25 **Metasurface Bandpass Filter Array for Visible and Near-infrared Spectral Imaging**

Yeonsang Park, Chungnam National University, South Korea

11:50 **Nonvolatile Control of Physical Properties in Correlated Oxides by Electric Field**

Ming Zheng, China University of Mining and Technology, China

Featured Presentations (Each Presentation 15 Minutes + 5 Minutes Q&A)

- 12:15 **Metrology of Bimodal Gaussian Sample of Cylindrical Nanoparticles Using Translational-rotational Ultrafast Image-based Dynamic Light Scattering**
Paul Briard, Xidian University, China
- 12:35 **On the Tunable Hysteresis Loop and Oscillations of Magnetization in Weakly Disordered Antiferromagnetic-ferromagnetic Bilayers**
Svetislav Mijatovic, University of Belgrade, Serbia
- 12:55 **Ultrahigh Energy Storage Density of $(\text{Bi}_{0.5}\text{Na}_{0.5})_{0.65}\text{Sr}_{0.35}\text{TiO}_3$ -based Lead-free Relaxor Ceramics with Excellent Temperature Stability**
Xiaojie Lou, Xi'an Jiaotong University, China
- 13:15 **Dispersant-free Colloidal Dispersion of Single-walled Carbon Nanotubes for and its Electrochemical Applications**
Joong Tark Han, Korea Electrotechnology Research Institute, South Korea
- 13:35 **Complex-amplitude Hologram by Dielectric Metasurface**
Qiang Jiang, Beijing Institute of Technology, China
- 13:55 **Exchange Coupled Magnetic Nano-heterostructures with Enhanced Energy Product**
Beatrice Muzzi, ICCOM - CNR, Italy

Emerging Researcher Presentations (Each Presentation 10 Minutes + 5 Minutes Q&A)

- 14:15 **In-situ Nanofluid Dispersion Monitoring by Liquid-Solid Triboelectric Nanogenerator Based on Tuning the Structure of the Electric Double Layer**
Hao Luo, Chongqing University, China
- 14:30 **Selectively Supported Catalysts of Copper and Nickel on Hybrid Ceria-Alumina Nanoparticles**
Gu Rongtian, NanJing University, China
- 14:45 **Modeling of the Multi-layered Nanoparticles as Nano-sources of Heat for Photothermal Therapy**
Joshua Fernandes, Dong-A University, South Korea

E-posters (Each Presentation 7 Minutes + 3 Minutes Q&A)

- 15:00 **Preparation and Antibacterial Properties of Nano-zinc Oxide Particles/ ϵ -polylysine Containing PETG Foils**
Wuda Li, Nanchang University, China
- 15:10 **Synthesis of Ceramide-coated Gold Nanoparticles to Study Skin Barrier Arrangement**
Sorina Hirbod, Charles University, Czech Republic
- 15:20 **A New Early Diagnostic Method for Pancreatic Cancer by Nano Sensing Through Surface Enhanced Raman Spectroscopy (SERS)**
Sidarth Krishna, Acton-Boxborough Regional High School, MA
- 15:30 **A Potentially Early Diagnosis of Bronchial Asthma by SERS Nano Detection**
Luyao Shi, Academy for Advanced Research and Development, MA

We wish to see you @

Nano Boston-2023



USG-United Scientific Group (A non-profit organization)

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