

6th

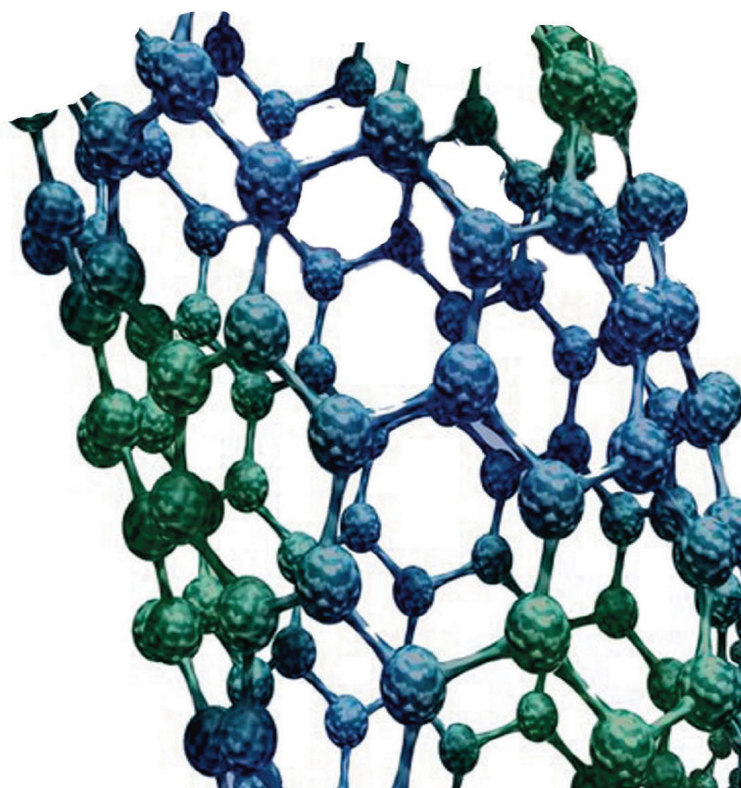
IC4N2019

Technical Program

SIXTH
INTERNATIONAL
CONFERENCE

FROM NANOPARTICLES
AND NANOMATERIALS

TO NANODEVICES
AND NANOSYSTEMS



June 30 - July 3, 2019
Corfu Island, Greece

University of Texas at Arlington, University of Patras, Karlsruhe Institute of Technology,
University of Science and Technology Beijing

Tuesday, July 2, 2019

8:30 - 10:00 **Keynote Lectures I & II Chairs:** Vassilios Kapaklis, Krishnan Rajeshwar
Hall: Kerkyra Ballroom

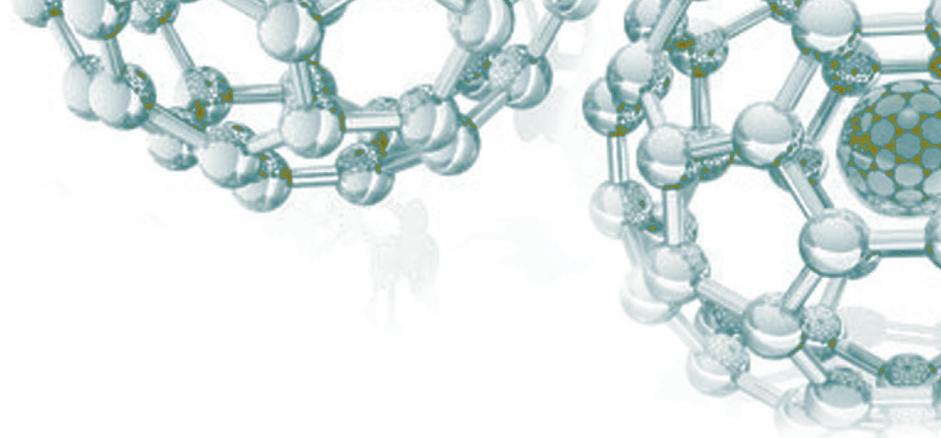
8:30-9:15 **Björgvin Hjörvarsson** (Sweden)
Uppsala University
Artificial Magnetic Atoms

9:15-10:00 **Mercouri Kanatzidis** (USA)
Northwestern University
Chemistry and Devices from Halide Perovskites Semiconductors

10:00 - 10:30 **Coffee Break** (Conference Area Foyer)

MORNING SESSION, 10:30-13:00

	Fundamentals/Materials Genome FMG-4 Chair: Henning Zettergren Hall: Kerkyra	Nanoscale Photochem./ Charge Transfer/Energy Conv. NPCTEC-4 Chair: Jean-Hubert Olivier Hall: Krokidis	Magnetism at the Nanoscale MNS-3 Chairs: Panayiotis Pouloupoulos Hall: Ithaca/Paxi	Energy Conversion EC-1 Chairs: George Demopoulos Hall: Lefkas/Zante
10:30-11:00	Lara Kühn Teles* (Brasil) Tailoring the Properties and Predicting the Energy Gap of 2D Materials: a View from First Principles	Krishnan Rajeshwar* (USA) Fuel from the Sun: Where is that Pot of Gold?	Stefano Bonetti* (Sweden) Terahertz Spin Dynamics in Metallic Thin Films	Yue Zhang* (P.R. China) Interface Engineering on 1D ZnO Nanomaterials and their Applications
11:00-11:30	Ryan Chiechi* (Netherlands) The Role of Self-Assembly in Switching Phenomena in Molecular Tunneling Junctions	Dorota Gryco* (Poland) Porphyrins as Photoredox Catalysts	Evangelos Papaioannou* (Germany) Spintronics and THz Radiation: Probing Ultrafast Spin and Charge Current Dynamics	A. Vadimel Murugan* (India) Challenges and Opportunities in Nanostructured Materials for Clean Energy Conversion and Storage
11:30-12:00	Kuan Eng Johnson GOH* (Singapore) Using Artificial Intelligence and Computational Techniques to Assist the Engineering of 2D Materials	David Tiede* (USA) X-ray Characterization of Thin-Film Catalyst Structures Used in the Artificial Leaf and Dye-Sensitized Interfacial Charge Transfer	Andreas Ney* (Austria) Spatially and Time-resolved x-ray Detected Ferromagnetic Resonance to Study Dynamic Magnetic Properties of Micro-magnets	George Demopoulos* (Canada) Nanocrystal Engineering of Electrode Materials for Sustainable Solar Energy Harvesting and Storage Applications
12:00-12:30	Udo Schwingenschloegl* (Germany) 2D Thermoelectric Materials: Role of the Lattice Thermal Conductivity	Ksenija Glusac* (USA) Biomimetic NADH Analogs for Photochemical CO ₂ Reduction	Sebastian Wintz* (Switzerland) Topological Spin Textures as Spin Wave Emitters	Emmanuil Glynos* (Hellas) High Performance Solid Polymer Electrolytes for Energy Storage via Macromolecular Engineering
12:30-13:00	Vladimir Falko* (UK) Optoelectronic Properties of Few-layer Films of 2D Semiconductors	Gary Moore* (USA) Nanoscale Architectures for Applications in Electrocatalysis and Photoelectrosynthesis	Yasser Shokr* (Germany) Steering of Magnetic Domain Walls by Single Ultrashort Laser Pulses	Jiri Capek* (Czech Republic) HiPIMS Deposition of Ta-O-N Films for Water Splitting



AFTERNOON SESSION, 15:30-19:30

	Fundamentals/Materials Genome FMG-5 Chair: Charl Faul Hall: Kerkira	Environmental Applications and Implications EAI-1 Chair: Athanasios Mitropoulos, Rami Rtimi Hall: Krokidis	Magnetism at the Nanoscale MNS-4 Chair: Evangelos Papaioannou Hall: Ithaca/Paxi
15:30-16:00	Eli Kapon* (Switzerland) Tailoring Quantum Dots and Photonic Crystals for Integrated Quantum Photonic Applications	Athanasios Mitropoulos* (Hellas) The effect of Nanobubbles on Heavy Metal Ions Adsorption by Activated Carbon Produced from Lignite	Armin Kleibert* (Switzerland) Enhanced and Metastable Magnetism Directly Probed in Individual Nanoparticles
16:00-16:30	Martin Beyer* (Austria) Intrinsic Properties of Molybdenum Sulfide Clusters, the Key Constituents of a Potent HER Catalyst	Rami Rtimi* (Switzerland) Nano-structured Photocatalytic Surfaces Prepared by Sputtering for Infections Prevention in Hospital Facilities: Non-noble Metals for a Noble Aim	Fabrice Wilhelm* (France) Element-specific Characterization of Co:FePt Nanocomposite Magnet Films
16:30-17:00	Stephan Reitzenstein* (Germany) Deterministic Nanofabrication of Quantum-dot Based Single-photon Sources for Applications in Quantum Communication	Rui Silva* (Portugal) Photocatalytic Activity of CNTs/ZnO Nanostructures Prepared via Atomic Layer Deposition	Stefanos Mourdikoudis* (UK) Dimpled SiO ₂ Nanostructures Decorated with Magnetic Iron Oxide Nanoparticles for As Detection and Removal in Aqueous Medium

17:00 - 17:30 Coffee Break (Conference Area Foyer)

	Fundamentals/Materials Genome FMG-6 Chair: Klaus Boldt Hall: Lefkas/Zante	Functional Electroactive Materials & Nanostructures FEMN-1 Chair: John Mangeri, Seungbum Hong Hall: Kerkira	Magnetism at the Nanoscale MNS-5 Chair: Andreas Ney Hall: Ithaca/Paxi
17:30-18:00	Tomoya Ono* (Japan) DFT Study on Carrier Transport in Electronic Devices	Seungbum Hong* (S. Korea) Materials Imaging Initiative: A New Paradigm for Functional Materials	Alexandre Dmitriev* (Sweden) Magnetic, Chemical and Electrical Steering of Light at the Nanoscale
18:00-18:30	Davi Rodrigues* (Germany) Creation and Manipulation of Magnetic Topological Textures by Electrical Means	EunAe Cho* (S. Korea) Electrocatalysts for Polymer Electrolyte Membrane Fuel Cell	Vassilios Kapaklis* (Sweden) Magnetic Metamaterials
18:30-19:00	Jin He* (China) A Physical Model for Nanoscale GaN Based HETMs	Jong Min Yuk* (S. Korea) In-situ Graphene Liquid Cell Electron Microscopy	Antonio Garcia Martin* (Spain) Anisotropic Thermal Magnetoresistance in Radiative Heat Transfer
19:00-19:30		John Mangeri* (USA) Control of Nanoparticle Ferroelectric Vortex-like Polarization States	Denys Makarov* (Germany) Curvilinear Magnetism

19:30

Social Hour (Open to all participants)

*INVITED LECTURE

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THE EFFECT OF NANOBUBBLES ON HEAVY METAL IONS ADSORPTION BY ACTIVATED CARBON

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It is fact that apart from the adsorption capacity of each material used in wastewater treatment, another important factor is the optimum contact time. The shorter the adsorption time (until equilibrium) is, the more cost effective is the whole process. The whole process is conducted in aqueous phase, given that the wastewaters are in a water medium. Water decontamination is of high importance issue and many different technologies have been developed for this purpose. A promising one is the adsorption of pollutants (dyes, heavy metals, pharmaceutical compounds, phenols, etc.) onto porous materials. This wastewater treatment method is considered the most cost effective, especially when low cost adsorbents are selected. In this work, Nanobubbles (NBs) enriched deionized water is suggested for the investigation of heavy metal removal efficiency. Lead ions (Pb(II)) were selected as model pollutants. As model adsorbent material, activated carbon was synthesized using a novel source. Lignite (from Greek power industry) was supplied and after appropriate modifications was transformed to activated carbon with very high yield percentage (67%). The main scope of the present study is to examine how NBs affects the adsorption capacity or kinetics. The adsorption capacity of Pb(II) was found to be approximately similar either in the presence ($Q_{\max} = 171$ mg/g) or absence of NBs in water ($Q_{\max} = 167$ mg/g). On the contrary, the major effect of NBs was to accelerate the adsorption process by 366%. A mechanism was proposed too [1].

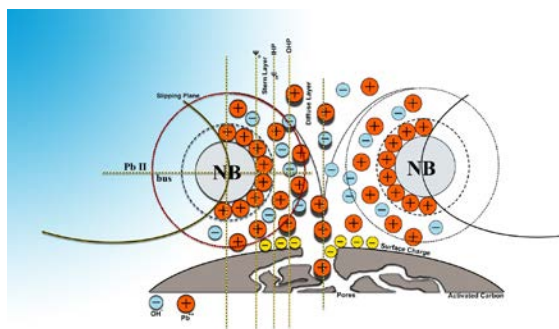


Fig. 1 Illustration of the effect of NBs on adsorption kinetics of Pb²⁺ by activated carbon.

[1] G.Z. Kyzas, et al. Chem. Eng. J. 356, 91-97 (2019).

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