



CNMN

Centrul național de
micro și nanomateriale



The Academy of Romanian Scientists

University Politehnica of Bucharest

National Center of Micro and Nanomaterials



International Scientific Conference

APPLICATIONS OF CHEMISTRY IN NANOSCIENCES AND BIOMATERIALS ENGINEERING

Virtual Conference - Teams platform

25 - 26 June 2021

Conference opening - 25 June at 9:00 AM

[Access link](#)

APPLICATIONS OF CHEMISTRY IN NANOSCIENCES AND BIOMATERIALS ENGINEERING PROGRAM - 25 June 2021

9:00-9:15 - OPENING CEREMONY

9:15-12:00 - PLENARY SESSION

Chairs - SERGUEI SAVILOV, ANTON FICAI

9:15-9:45 - The Features of Carbon Nanostructures. **SERGUEI SAVILOV**

9:45-10:15 - To Be Confirmed. **BRANDON ONG**

10:15-10:35 - The Biomedical Applications of Chitosan Based Nanomaterials as Wound Dressings. **LENUȚA PROFIRE, ANDREEA TEODORA IACOB, OANA MARIA IONESCU, TEODORA IURĂȘCU, IOANNIS GARDIKIOTIS, SIMONA ELIZA GIUȘCA, IRINA-DRAGA CĂRUNTU**

10:35-10:50 - Presentation on the Legislation in the Field of Medical Devices in the Current European and International Context. **SORINA LOGHIN**

10:50-11:20 - Polymer Nanocarriers as Emerging Smart Nanoformulations. **DOMENICO LOMBARDO**

11:20-11:50 - From Self-Assembly of Amphiphiles to Ionic Liquid Formation. **PIETRO CALANDRA**

11:50-12:30 - POSTER SESSION

12:30-13:30 - LUNCH BREAK

13:30 - 16:00 - SESSION I. APPLICATIONS OF NATURAL COMPOUNDS

Chairs - PIETRO CALANDRA, LENUȚA PROFIRE

13:30-13:45 - Production of Nanofibers Containing Purified Black Seed Oil by Making Use of Electrospinning System. **IHSAN FATİH ERTAS, MÜSLÜM DEMİRCİOĞLU, MUHAMMET UZUN**

13:45-14:00 - The Use of Additive Manufacturing Method to Develop Lanolin Based Scaffold for Wound Dressing Applications. **AL AMIN, ANI DIANA KUYUMCU, MUHAMMET UZUN, OĞUZHAN GÜNDÜZ**

14:00-14:15 - Controlled Release of Resveratrol-Loaded Levan Nanoparticles Using Electrospray. **EZGI CINAN, SUMEYYE CESUR, OGUZHAN GUNDUZ, EBRU TOKSOY ONER**

14:15-14:30 - Polyphenols: A Natural Alternative for Cancer Therapy. **ALINA FLORENTINA VLADU, ANTON FICAI**

14:30-14:45 - Antioxidant Activity of *Taraxacum Officinale*. **ALA FULGA, VALERIANA PANTEA**

14:45-15:00 - Synthesis and Characterization of Electrospun Nanofibers Loaded with Black Tea/Thyme Plant Extracts as an Antimicrobial Wound Dressing. **AYBUKE GUR, SUMEYYE CESUR, TUBA SEVİMOĞLU, OGUZHAN GUNDUZ**

15:00-15:15 - Controlled Release of Amygdalin Loaded PLA/PEG Nanofiber by Electrospinning Method. **SERAP AYAZ SEYHAN, DILEK BILGIC ALKAYA, SUMEYYE CESUR, OGUZHAN GUNDUZ**

15:15-15:30 - Production, Characterization, and Evaluation of Sublingual *Micromeria Fruticosa* Subsp. Brachycalyx-Loaded Chitosan/Polyvinyl Alcohol Nanofibers. **İLKE KABAĞLU, RAVANA BABAZADE, FADİME TOPAL, ECE GÜLER, HATİCE KÜBRA ELCİOĞLU, MUHAMMET EMIN CAM**

15:30-15:45 - The Evaluation of Ultra-Fast Release *Teucrium Polium*-Loaded Nanofibers Produced by Electrospinning in the Treatment of Diabetes Mellitus. **ELİF BEYZANUR POLAT, AYSE NUR HAZAR-YAVUZ, ECE GÜLER, HATİCE KÜBRA ELCİOĞLU, MUHAMMET EMIN CAM**

APPLICATIONS OF CHEMISTRY IN NANOSCIENCES AND BIOMATERIALS ENGINEERING

15:45-16:00 - Drug Delivery Systems for Topical Cannabidiol. An Overview and Future Research Directions. GEANINA SILVIANA BANU. ANTON FICAI. NICOLAE COSTACHE

13:30 - 16:00 - SESSION II. NANOSTRUCTURES FOR FOOD PACKAGING, BIOREMEDIATION, AND INDUSTRIAL APPLICATIONS (I)

Chairs - BRANDON ONG. MARIA GAVRILESCU

13:30-13:45 - Initial Screening of Biosorption Process Modelling and Optimization for its Industrial Scale-up. MIHAELA ROȘCA. RALUCA-MARIA HLIHOR. PETRONELA COZMA. CĂTĂLINA FILOTE. ISABELA-MARIA SIMION. MARIA APOSTOL. MARIA GAVRILESCU

13:45-14:00 - Comparison of Eco-Friendly and Conventional Bioremediation Processes Scenarios of Metal-Loaded Wastewaters. CĂTĂLINA FILOTE. MIHAELA ROȘCA. ISABELA MARIA SIMION. RALUCA-MARIA HLIHOR

14:00-14:15 - Nickel Toxicity for *Sinapis Alba L.* Plant and its Phytoremediation Potential for Metal Recovery. MARIANA MINUȚ. MIHAELA ROȘCA. PETRONELA COZMA. MARIANA DIACONU. MARIA GAVRILESCU

14:15-14:30 - Ecological Risk Assessment on Heavy Metals in Soils: An Overview. GINA-MIHAELA FINARU (CHELARU). PETRONELA COZMA. CAMELIA SMARANDA. IOAN MAMALIGA. MARIA GAVRILESCU

14:30-14:45 - Environmental Constraints Generated by Food Waste and Alternatives for Sustainable Management. ERSILIA DANIELA LAZAR (COȘBUC). ELENA-DIANA UNGUREANU-COMANITA. SIMONA ILĂU (OLTEANU). MARIA GAVRILESCU

14:45-15:00 - Comparative Assessment of Lead Chloride and Cadmium Chloride to *Ocimum Basilicum L.* DANA MIHAELA ASIMINICESEI. LAURA HAGIU ZALESCHI. MARIA APOSTOL. RALUCA MARIA HLIHOR. MARIA GAVRILESCU

15:00-15:15 - Chemical Removal of Residual Lead from the Candidate Materials for Lead Cooled Fast Reactors. DANIEL PETRESCU. MANUELA FULGER. FLORENTINA GOLGOVICI. VALENTIN LĂUTARU

15:15-15:30 - Corrosion Resistance Investigation in Liquid Lead of a Coated 316L Austenitic Steel. DANIEL PETRESCU. MANUELA FULGER. MIRCEA CORBAN. FLORENTINA GOLGOVICI.

15:30-15:45 - Investigation of Chemical Stress Generated by Lead on the Growth and Physiology of *Zea Mays L.* IONELA CĂTĂLINA VASILACHI. DANA MIHAELA ASIMINICESEI. MARIANA MINUȚ. MIHAELA ROȘCA. PETRONELA COZMA. CAMELIA SMARANDA. MARIA GAVRILESCU

15:45-16:00 - A Study on the Effect of Tip to Collector Distance to Electromechanical Properties of Electrospun Carbon Nanotube Based Flexible Strain Sensors. SELIN GENÇAY

16:00 - 16:30 - BREAK

16:30 - 19:00 - SESSION III. BIOMATERIALS FOR TISSUE ENGINEERING AND REGENERATION

Chairs - VITALIE COBZAC. IOANA DEMETRESCU

16:30-16:45 - Selection of an Appropriate Cross-linking Method of Collagen Sponges for Articular Cartilaginous Tissue Engineering. VITALIE COBZAC. LILIANA VERESTIUC. MARIANA JIAN. VIOREL NACU

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- 16:45-17:00 - Bacterial Cellulose/Boron Nitride Hydrogels Potential for Bone Tissue Engineering Applications. **SEMRA UNAL**
- 17:00-17:15 - Synthesis of Silk Fibroin Derived from Silk Cocoon and Using for Tissue Engineering Applications. **SUREYYA ELIF CELIK. SONGUL ULAG. AYSE CEREN CALIKOGLU KOYUNCU. OGUZHAN GUNDUZ**
- 17:15-17:30 - Collagen and Keratin Additives for New Nanostructures in Tissue Engineering: **MARIA STANCA. CARMEN GAIDAU. MARIA RAPA. DANIELA BERECHET. ANAMARIA MOSUTIU**
- 17:30-17:45 - Terbium-Doped Hydroxyapatite. **ANDREI PĂDURARU. OVIDIU OPREA. ADINA MAGDALENA MUȘUC. BOGDAN ȘTEFAN VASILE. FLORIN IORDACHE. ECATERINA ANDRONESCU**
- 17:45-18:00 - Effect of Corn Starch Additive on Mechanical and Biocompatibility Properties of Sintered β -TCP Bioceramics. **YİĞİT TURAN. CEVRIYE KALKANDELEN. YUKSEL PALACI. ALI ŞAHİN. HASAN GÖKÇE. OĞUZHAN GÜNDÜZ**
- 18:00-18:15 - Biomaterials Based on Multifunctional Hydroxyapatite for Orthopedic Applications. **REKA BALINT. GHEORGHE TOMOAIA. DANIEL OLTEAN-DAN. AURORA MOCANU. MARIA TOMOAIA-COTISEL**
- 18:15-18:30 - Bioceramics Based on Magnesium Silicate for Bone Regenerative Medicine. **ALEXANDRA AVRAM. MARIA GOREA. GHEORGHE TOMOAIA. AURORA MOCANU. MARIA TOMOAIA-COTISEL**
- 18:30-18:45 - Biological Assesment of Electrospun Nanofibres Based on Chitosan. **ANDREEA-TEODORA IACOB. OANA-MARIA IONESCU. TEODORA IURASCU. MARIA APOTROSOAEI. FLORENTINA LUPĂȘCU. MARIA DRĂGAN. LENUȚA PROFIRE. ANTON FICAI. ECATERINA ANDRONESCU.**
- 18:45-19:00 - Hyaluronic Acid-Based Electrospun Nanofibers: Design and Characterization. **OANA MARIA IONESCU. ANDREEA TEODORA IACOB. ARN MIGNON. SANDRA VAN VLIERBERGHE. TEODORA IURĂȘCU. IOANNIS GARDIKIOTIS. NATALIA SIMIONESCU. LENUȚA PROFIRE**

16:30 - 19:00 - SESSION IV. NOVEL MATERIALS AND NANOPRODUCTS

Chairs - DOMENICO LOMBARDO. OVIDIU OPREA

- 16:30-16:45 - The Evaluation of the Osteoinductive Effect of Vitamin D3/Vitamin K2/Magnesium-Loaded Polylactic Acid/Tricalcium Phosphate/Polycaprolactone Composite Nanofibers on Wnt/B-Catenin Pathway. **ECE GULER. MUHAMMET EMIN CAM**
- 16:45-17:00 - Novel Trataments for Nail Diseases. **TEODORA ANDREEA BUNDA**
- 17:00-17:15 - Magnetite-Silica Core-Shell Nanoparticles Functionalized with Essential Oils for Antimicrobial Therapies. **CRISTINA CHIRCOV. MARIA MATEI. ALEXANDRU MIHAI GRUMEZESCU. IONELA ANDREEA NEACȘU. ECATERINA ANDRONESCU**
- 17:15-17:30 - Gelatin Methacryloyl (GelMA) Nanofibers via Centrifugal Spinning. **EZGI ISMAR. OGUZHAN POLAT. FATİH ARICAN. AYKUT SANCAKLI**
- 17:30-17:45 - Hybrid Material: Silver Nanoclusters Trapped in PEGDA-Based Hydrogel for Environmental Monitoring. **LUCA BURRATTI. NAYELI REYES MORENO. FABIO DE MATTEIS. ROBERTO FRANCINI. PAOLO PROSPPOSITO**
- 17:45-18:00 - Sulfur-Doped Graphene Nanoflakes: Synthesis and Application in Supercapacitors. **MIKHAIL LEVIN. EKATERINA ARKHIPOVA. ANTON IVANOV. DMITRII STOLBOV. SERGUEI SAVILOV**
- 18:00-18:15 - Extracellular Vesicles as Tiny Riddles from Medicine to Material Science. **ESRA CANSEVER MUTLU**

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18:15-18:30 - Synthesis of Ti_3C_2Tx Mxene with Various Surface Functionalisation. NIKOLAY OSIPOV. EVGENIYA SUSLOVA. SERGUEI SAVILOV

18:30-18:45 - Mechanical Optimization of 3D Printed Sandwich Composites. S. VALVEZ. P.N.B. REIS. ABÍLIO P. SILVA

18:45-19:00 - A Route to Biofabrication of Microbubble Based Scaffolds via Microfluidic Systems. OĞUZHAN GÜNDÜZ. CEM BÜLENT ÜSTÜNDAĞ. MUSTAFA ŞENGÖR. ECEM DOĞAN

PROGRAM - 26 June 2021

9:00-10:00 - POSTER SESSION

10:00-12:30 - SESSION V. NANOMATERIALS AND BIOMATERIALS FOR THE CONTROLLED RELEASE OF BIOACTIVE MOLECULES (I)

Chairs - OGUZHAN GUNDUZ. MARIA TOMOAIA-COTISEL

10:00-10:15 - Biocompatible and Biomimetic Nanofibers Based on Chitosan and Active Substances with Antioxidant Effects. TEODORA IURASCU. ANDREEA-TEODORA IACOB. ALEXANDRU SAVA. OANA IONESCU. LENUȚA PROFIRE

10:15-10:30 - New Multitarget Polymer Systems for the Treatment of Diabetes Mellitus. FLORENTINA G. LUPASCU. I. VASINCU. ANDREEA-TEODORA IACOB. M. APOTROSOAEI. D. LUPASCU. G. TAUSER. M. DRAGAN. A. ABABEL. L. HERCIU. S. ROTARIU. LENUȚA PROFIRE

10:30-10:45 - A Novel Multi-Target Strategy for the Treatment of Alzheimer's Disease: Donepezil/Memantine/Curcumin-Loaded Nanofibers. FADIME TOPAL. BUSRA ERTAS. MUHAMMET EMIN CAM

10:45-11:00 - Fabrication of Antifungal and Antibiotic Loaded PMMA Nanofiber Patches to Repair the Corneal Ulcers. SONGUL ULAG. MUSTAFA SENGOR. OGUZHAN GUNDUZ

11:00-11:15 - Eggshell Membrane Biotemplated Metal-Organic Framework Nanocomposite for Drug Release Study. ASLI KATMIŞ. SEMRA UNAL. FAIK N. OKTAR

11:15-11:30 - The Development of Insulin-Loaded Sodium Alginate/Polyethylene Glycol Sublingual Scaffolds Produced by 3D-Printing Technology for the Treatment of Type 1 Diabetes Mellitus. SEVDENUR AKKUTUK. ECE GULER. MUHAMMET EMIN CAM

11:30-11:45 - Donepezil/Curcumin-Loaded Polycaprolactone/Poly(lactic acid) Nanofibers: A Novel Drug Delivery System for the Treatment of Alzheimer's Disease. SALIHA AYDIN. ILKE KABAOGLU. ECE GULER. FADIME TOPAL. AYSE NUR HAZAR YAVUZ. MUHAMMET EMIN CAM

11:45-12:00 - A Combined Method for Fabrication of Chitosan/PLA 3D Printed Scaffold with Rifampicin-Encapsulated Microspheres for Therapy of *Hidradenitis Suppurativa*. MERT GEZEK. HANNE MERYEM KARADURMUŞ. ELIF İLHAN. OĞUZHAN GÜNDÜZ

12:00-12:15 - Production and Characterization of Empagliflozin-Loaded 3-Layer Polymeric Fibers for the Treatment of Diabetes Mellitus: An *In-vitro* Study. AYSE NUR HAZAR-YAVUZ. ECE GULER. MUHAMMET EMIN CAM

12:15-12:30 - Fabrication and Characterization of Carbamazepine Loaded Poly(lactic acid) (PLA) Nanofibrous Scaffolds. DILEK BILGIC ALKAYA. SERAP AYAZ SEYHAN. SUMEYYE CESUR. OGUZHAN GUNDUZ

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**10:00-12:30 - SESSION VI. NANOSTRUCTURES FOR FOOD PACKAGING,
BIOREMEDIATION, AND INDUSTRIAL APPLICATIONS (II)**

Chairs - CEM BÜLENT ÜSTÜNDAĞ. BOGDAN ȘTEFAN VASILE

- 10:00-10:15- The Effect of Nanofiller Concentration on the Piezoresistive Properties of Electrospun Multiwalled Carbon Nanotubes (MWCNTS)/Thermoplastic Polyurethane (TPU). **MERT TAŞ. FATİH İHSAN ERTAŞ. SELİN GENÇAY. ABDULKADİR ŞANLI. MUHAMMED UZUN**
- 10:15-10:30 - Effect of Manufacturing Parameters on Mechanical Properties of Graphene-Based Nanocomposites. **J.M. PARENTE. M.P. SILVA. P.N.B. REIS**
- 10:30-10:45 - Air Pollution and its Effects on Sars-Cov-2 Variants. **CRISTINA ROXANA POPA. GHEORGHE TOMOAI. AURORA MOCANU. MARIA TOMOAI-COTISEL**
- 10:45-11:00 - The Influence of Proteins on Metallic Biomaterials. **RADU NARTIȚĂ. DANIELA IONIȚĂ. IOANA DEMETRESCU**
- 11:00-11:15 - Ferrocene Catalyzed Production of Carbon Nanotubes. **A.P. KOZLOV. D.N. STOLBOV. E.V. SUSLOVA**
- 11:15-11:30 - Perspectives of Waste Management Resulting from the Bakery Industry. **SIMONA OLTEANU. ERSILIA COȘBUC. ELENA-DIANA UNGUREANU-COMANIȚĂ. MARIA GAVRILESCU**
- 11:30-11:45 - Production of Oleic Acid Doped PVA Based Film Structure Used as Packaging. **SEMA TUĞÇE AYDIN. MUSTAFA ŞENGÖR**
- 11:45-12:00 - A Novel Biodegradable Material Application for Sustainable Button Design. **BAHAR AŞILIOĞLU. AKIO KOBAYASHI. TÜRKAN ÖZGER. MUHAMMET UZUN**
- 12:00-12:15 - Electrochemical Investigation of Thin CrN_x Films Deposited on 310 H Stainless Steel by Thermoionic Vacuum Arc (TVA) Method. **AURELIA ELENA TUDOSE. IOANA DEMETRESCU. FLORENTINA GOLGOVICI. MANUELA FULGER. DIANA DINIAȘI. CRISTINA SURDU-BOB. ALEXANDRU ANGHEL. MARIUS BĂDULESCU**

12:30-13:30 - LUNCH BREAK

**13:30-15:15 - SESSION VII. NANOMATERIALS AND BIOMATERIALS FOR THE
CONTROLLED RELEASE OF BIOACTIVE MOLECULES (II)**

Chairs - VIOREL NACU. RADU CLAUDIU FIERASCU

- 13:30-13:45 - Influence of Sulfated Polysaccharides from *Spirulina Platensis* on the Content of Malonic Dialdehyde in Muscle Tissue in Oxidative Stress. **VEACESLAV POPA. VALERIANA PANTEA**
- 13:45-14:00 - Evaluation and Production of Chitosan-Based Self-Assembled Nanoparticles for Oral Insulin Delivery. **ENFAL ESER. ECE GULER. MUHAMMET EMIN CAM**
- 14:00-14:15 - β -Glucan-Loaded Polyethylene Oxide/Sodium Alginate Fibers Produced by Pressurized Gyration for the Treatment of Wound Healing. **BEYZANUR ULUDOGAN. ENFAL ESER. BUSRA ERTAS. MUHAMMET EMIN CAM**
- 14:15-14:30 - Controlled Release Systems Based on Mesoporous Silica and Active Agents. **GABRIELA PETRISOR. DENISA FICAI. LUDMILA MOTELICA. ROXANA TRUSCA. VLADIMIR LUCIAN ENE. ANTON FICAI**
- 14:30-14:45 - Fabrication of Whey Protein-Loaded 3D-Printed Poly(lactic) Acid Patches for Functional Burn Wound Healing. **HANNE MERYEM KAYADURMUŞ. ELIF İLHAN. OĞUZHAN GÜNDÜZ**
- 14:45-15:00 - Development of Sublingual Rivastigmin/Memantine/Ginkgo Biloba-Loaded Nanofibers for the Treatment of Alzheimer's Disease: *In Vitro* Studies. **BUSRA ERTAS. ECE GULER. MUHAMMET EMIN CAM**

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15:00-15:15 - Impact of New Thiosemicarbazone Derivatives for Erythrocytes Antioxidant System Indices: An *Ex Vivo* Study. VALERIANA PANTEA. MARINA GAMANIUC. CRISTINA POPUȘOI. ALA FULGA. VEACESLAV POPA

13:30-15:15 - SESSION VIII. ADVANCED AND NOVEL TECHNIQUES FOR MATERIAL PROCESSING

Chairs - ANDREEA-TEODORA IACOB. JÖRG OPITZ

13:30-13:45 - Hyaluronic Acid Production from Rooster Comb. CEVRIYE KALKANDELEN. SENA SU. ELIF SAATÇIOĞLU. OĞUZHAN GÜNDÜZ

13:45-14:00 - The Investigation of the Mechanical Properties of the Coronary Stent with Finite Element Analysis. MUSTAFA ŞENGÖR. MERVE SIRTİKARA

14:00-14:15 - Development of a Method for the Synthesis of New Efficient Electrocatalysts Based on Mo₂C. NATALIA MARTYNOVA

14:15-14:30 - New Route for Synthesis of Silver Nanoparticles Using a Microfluidic Platform. ALEXANDRA CĂTĂLINA BÎRĂ. ALEXANDRU MIHAI GRUMEZESCU. ECATERINA ANDRONESCU

14:30-14:45 - Application of TVA Coating Technology on Zy-4 and as-Received Cr Coating Characterization. DIANA DINIASI. IOANA DEMETRESCU. FLORENTINA GOLGOVICI. CRISTINA SURDU. ALEXANDRU ANGHEL. MARIUS BADULESCU. MANUELA FULGER. AURELIA TUDOSE

14:45-15:00 - Morphological, Structural, and Chemical Characterization of Hydroxyapatite Obtained Through Different Synthesis Routes. MARIA-ELENA ZARIF. ALINA MARIA HOLBAN. SORIN VIZIREANU. GHEORGHE DINESCU. ALEXANDRU MIHAI GRUMEZESCU. ECATERINA ANDRONESCU

15:00-15:15 - An Innovative Experimental Technique for Material System Dynamical Investigations on Nanoscopic Scale: Elastic Neutron Scattering Measurements Based on Statistical Chopper. MARIA TERESA CACCAMO

15:15-16:00 - CLOSING CEREMONY