RAN
CONGRESS

6TH WORLD CONGRESS ON RECENT ADVANCES IN NANOTECHNOLOGY (RAN'21)

June 14, 2021 - June 16, 2021 | ~~Lisbon, Portugal~~| Virtual Conference

THE RAN'21 CONGRESS IS COMPOSED OF 2 CONFERENCES

NDDTE '21

IC NNFC'21

June 14

June 15

June 16

OUR PROGRAM SCHEDULE IS BASED ON EASTERN TIME (ET - OTTAWA TIME)

JUNE 14

10:00 AM – 12:00 PM **Registrations**

RAN'21 Scientific Committee Chair

Dr. Wolfgang Ensinger

Technische Universität Darmstadt, Germany
Congress Chair
View Profile

Dr. Josef Jampilek

Comenius University, Slovakia
Congress Co-Chair
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JUNE 15

8:00 AM - 9:00 AM	**Registrations**
9:00 AM - 9:10 AM	**Official Opening**
	Dr. Wolfgang Ensinger,Technische Universität Darmstadt, Germany
9:10 AM - 10:10 AM	**PLENARY LECTURE**
	Using Extracellular Vesicles for Brain Delivery of Therapeutic Proteins **Dr. Elena Batrakova, The University of North Carolina, USA**
10:10 AM - 10:55 AM	**NDDTE KEYNOTE LECTURE**
	Polyvalent Multifunctional Nanoparticles: A Powerful Tool to Address Various Biomedical Challenges **Dr. Dejian Zhou, Leeds University, UK**
10:55 AM - 11:05 AM	**Break**
11:05 AM - 11:50 AM	**ICNNFC KEYNOTE LECTURE**
	Explore the Application of Electron Work Function in Material Design towards "Electronic Metallurgy" **Dr. Dongyang Li, University of Alberta, Canada**

JUNE 15

	SESSION Nanomaterials, Nanodevices: Fabrication, Characterization and Application I
11:50 AM - 12:25 PM	**Lunch Break**
12:25 PM - 12:45 PM	**ICNNFC KEYNOTE LECTURE**
	Functional Nanoparticles via “Living” Crystallization-Driven Self-Assembly **Dr. Ian Manners, University of Victoria, Canada**
1:40 PM - 2:00 PM	**SESSION** Nanomedicine, Drug Delivery, and Tissue Engineering I

PLENARY LECTURE

JUNE 15 | 9:10 AM - 10:10 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY

Titles: Using Extracellular Vesicles for Brain Delivery of Therapeutic Proteins

Dr. Elena Batrakova, The University of North Carolina, USA

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Elena V. Batrakova obtained Ph.D. in Polymer chemistry at the Department of Polymers, M.V. Lomonosov Moscow State University (MSU), Russia. Since 2012, she is an Associate Professor of Pharmaceutical Sciences at the University of North Carolina at Chapel Hill, USA. For more than twenty years, she has been studying the assembly and applications of drug-loaded nanocarriers. Recently, the main focus of Dr. Batrakova's group is on the development of personalized drug delivery systems by loading therapeutics into immune response cells or extracellular vesicles (EVs) released from these cells. Specifically, her group developed and characterized EV-based drug delivery systems for therapeutic proteins, nucleic acids, and low molecular chemotherapeutics to treat Parkinson's disease, stroke, ALS, HIV-related dementia, and cancer. Overall, she has published over 130 papers and filed 20+ US and foreign patents on the application of drug delivery systems of biologically active molecules. She is a highly cited of total 10 scientists at UNC, and a Thomson Reuters agency named her top 1% Highly Cited Researcher.

KEYNOTE LECTURE

JUNE 15 | 10:10 AM - 10:55 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY

Titles: Polyvalent Multifunctional Nanoparticles: A Powerful Tool to Address Various Biomedical Challenges

Dr. Dejian Zhou, Leeds University, UK

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Dejian Zhou is full Professor of Nanochemistry at University of Leeds, UK. He obtained his BSc and PhD in Chemistry both from Peking University, China. Following postdoctoral research at Cranfield University and University of Cambridge, he was appointed to a Senior Lecturer at University of Leeds in 2007 and promoted to Professor of Nanochemistry in 2018. He is pursuing a polyvalent multifunctional nanoparticle strategy to address some important biomedical challenges, e.g. early detection and targeted multimodal treatment of cancer; probing structural mechanisms and developing new therapeutics targeting specific lectin-glycan interactions. He has published 4 book chapters and ~150 research papers (including 2 research highlights on the BBC) in some leading journals, e.g. Nature Nanotech., Adv. Mater., JACS, Angew. Chem.

He has received several awards and recognitions, Young Chemist Award (Chinese Chemical Society, 1996), National Excellent PhD Thesis Award (Ministry of Education, China, 1999) and Fellow of the Royal Society of Chemistry (FRSC, 2016). He is an Associate Editor of Computational and Structural Biotechnology Journal (Elsevier, IF: 6.02), and sits on the Editorial Board of Sensors (MDPI, IF: 3.28) and Advisory Board of Particle & Particle System Characterization (Wiley-VCH, IF: 3.83).

KEYNOTE LECTURE

JUNE 15 | 11:05 AM - 11:50 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY

Titles: Explore the Application of Electron Work Function in Material Design towards "Electronic Metallurgy"

Dr. Dongyang Li, University of Alberta, Canada

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Dr. Dongyang Li is a Professor at Dept. of Chemical & Materials Eng., University of Alberta. His interests of research include materials design, nano-materials, wear and corrosion, and computational materials science. Dr. Li is on the editorial board for eighteen technical journals and is the recipient of MetSoc 2020 Distinguished Materials Scientist Award in recognition as a renowned scientist and innovative researcher in tribo-materials (The Metallurgy and Materials Society). Dr. Li has in excess of 370 technical publications, including more than 330 journal publications. He is an invited contributor for authoritative handbooks (Elsevier, Springer, and ASM International). Dr. Li is a Fellow of the Institute of Materials, Minerals & Mining (FMMM) and a Fellow of the Institute of Physics (FInstP).

SESSION

NANOMATERIALS, NANODEVICES: FABRICATION, CHARACTERIZATION AND APPLICATION I

JUNE 15 | 11:50 AM - 12:25 PM | SESSION CHAIR: SESSION CHAIR: DR. JOSEF JAMPILEK, COMENIUS UNIVERSITY, SLOVAKIA

Titles: Multilayer Graphene Encapsulation on the Fe Nanoparticles Starting from Fe Chloride Precursors

ICNNFC 108
Time: 11:50 - 12:05
Presenter: Sıddıka Mertdinç, Istanbul Technical University, Turkey
Authors: Sıddıka Mertdinç, M. Lütfi Öveçoğlu, Duygu Ağaoğulları

Titles: Electroless Nano-Plating in Ion-track Etched Polymers: Iridium- and Bismuth-coated Membranes for Catalysis and Sensing Applications

ICNNFC 109
Time: 12:05 - 12:20
Presenter: Martin Christoph Scheuerlein, Technical University of Darmstadt, Germany
Authors: Martin Christoph Scheuerlein, Wolfgang Ensinger

Titles: Tio2 As A Nanocarrier Of Antibiotics (Quinolones): A Molecular Docking Assay

ICNNFC 303
Time: 12:20 - 12:25
Presenter: Esthela Paola García-Tejada, Universidad de Guanajuato, México
Authors: Esthela Paola García-Tejada, Ángel Albino-Flores, Jorge Emmanuel Mejía-Benavides, Lucero Fuentes-Ocampo, Erik Diaz-Cervantes

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KEYNOTE LECTURE

JUNE 15 | 12:45 PM - 1:30 PM | SESSION CHAIR: DR. JOSEF JAMPILEK

Titles: Functional Nanoparticles via "Living" Crystallization-Driven Self-Assembly

Dr. Ian Manners, University of Victoria, Canada

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Ian Manners is Canadian and British. He was born in London, England and, after receiving his B.Sc. and Ph.D. in the UK he conducted postdoctoral work in Germany and then in the USA. He joined the University of Toronto, Canada as an Assistant Professor in 1990 and was promoted to Full Professor in 1995 and was made a Canada Research Chair in 2001. In 2006 he returned to the UK to take up a Chair at the University of Bristol in Inorganic, Macromolecular and Materials Chemistry supported by an EU Marie Curie Chair. In 2018 he was awarded a Canada 150 Research Chair at the University of Victoria, Canada on Vancouver Island where he has set up a new research group.

Ian's research interests broadly focus on synthetic problems at molecular, macromolecular, and longer length scales. His current research projects include: catalytic main group chemistry and main group polymers, functional metallopolymers, crystallization-driven self-assembly of polymers, and nanoelectronics, catalysis, and nanomedicine with soft materials. He is the recipient of a wide range of national and international awards including a Alfred P. Sloan Fellowship (from the US), the Steacie Prize (from Canada), the RSC Award in Main Group Chemistry, and a Humboldt Research Award from Germany. Most recently he received the RSC de Gennes Prize (2017) and a 1000 Talents Award from China (2018) to support a Distinguished Visiting Professorship and satellite lab at Shanghai Jiao Tong University.

Ian's work is documented in ca. 750 career publications and 4 books and has been presented in ca. 560 invited lectures worldwide. He is an elected member of both the Canadian and the British National Academies of Science.

SESSION

NANOMEDICINE, DRUG DELIVERY, AND TISSUE ENGINEERING I

JUNE 15 | 1:40 PM - 2:00 PM | SESSION CHAIR: DR. JOSEF JAMPILEK & DR. JONATHAN COULTER

Titles: Toxic Metals Chelation by 18-Crown-6 Ethers in Multiple Solutions and Quantification by Spectroscopic Techniques

Time: 1:40 - 1:45
Presenter: Andrew L Cook, Vanderbilt University, United States
Authors: Andrew L Cook, Fan Xue, Todd D Giorgio

Titles: A New Generation of Biomolecular Sensors Based on Polymeric Ion Conducting Nanopores for Medical Diagnostics

NDDTE 106
Time: 1:45 - 2:00
Presenter: Wolfgang Ensinger, Technical University of Darmstadt, Germany
Authors: Wolfgang Ensinger

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JUNE 16

9:00 AM - 9:45 AM	**NDDTE KEYNOTE LECTURE**
	Colossal Magnetic Heat Induction of Magnesium Shallow Doped γ-Fe2O3 Nanofluids and Somatically Safe AC Magnetic Field Generator System for Clinically Safe Hyperthermia **Dr. Seongtae Bae, University of South Carolina, USA**
9:45 AM - 10:30 AM	**NDDTE KEYNOTE LECTURE**
	Quantum Dot Nanotechnology for Bioimaging and Drug Delivery Applications **Dr. Swadeshmukul Santra, University Of Central Florida, USA**
10:30 AM - 10:40 AM	**BREAK**
10:40 AM - 11:15 AM	**SESSION** **NANOMEDICINE, DRUG DELIVERY, AND TISSUE ENGINEERING II**
11:15 AM - 11:35 AM	**Lunch Break**

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JUNE 16

11:35 AM - 12:20 PM	**NDDTE KEYNOTE LECTURE**
	Development And Pre-Clinical Validation Of Multi-Functional Radiosensitising Nanoparticles - Successes And Challenges **Dr. Jonathan Coulter, Queen's University Belfast, UK**
12:20 PM- 12:45 PM	**SESSION** **NANOMATERIALS, NANODEVICES: FABRICATION, CHARACTERIZATION AND APPLICATION II**

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KEYNOTE LECTURE

JUNE 16 | 9:00 AM - 9:45 AM | SESSION CHAIR: DR. JOSEF JAMPILEK, COMENIUS UNIVERSITY, SLOVAKIA

Titles: Colossal Magnetic Heat Induction of Magnesium Shallow Doped γ-Fe2O3 Nanofluids and Somatically Safe AC Magnetic Field Generator System for Clinically Safe Hyperthermia

Dr. Seongtae Bae, University of South Carolina, USA

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Prof. Seongtae Bae received Ph. D degree in the Department of Electrical and Computer Engineering from the University of Minnesota, Minneapolis, USA in 2003.

He is currently working as an assistant professor and a director of "Nanobiomagnetics and Bioelectronics Laboratory (NB2L)" in the department of electrical engineering at the University of South Carolina (UofSC), Columbia, USA. In addition, he has a joint appointment with biomedical engineering program in the college of engineering and computing at UofSC. Prior to joining the UofSC, he was an associate professor in the department of neurosurgery at the Seoul National University (SNU) college of medicine, Seoul, KOREA, and he was also an assistant professor in the department of electrical and computer engineering at the National University of Singapore (NUS) (Singapore) for 9 years before joining SNU. While he was at the SNU, he was doing clinically translatable biomedical researches to develop magnetic nanofluid hyperthermia systems for brain tumors and bioelectronics engineering researches to design and commercialize new types of bioinstrumentations and medical devices/electronics for neurodegenerative diseases, neuromodulation, and cancers. Furthermore, while he was at the NUS, he established "Biomagnetics Laboratory (BML)" in 2005 to support basic applied researches and education in the field of biomagnetics, nanomedicine, and applied biospintronics. Prof. Bae's current research interests are focused on 1) Magnetic nanofluid hyperthermia and its clinical applications in nanomedicine, 2) Nanomagnetic biometerials and ferrite nanoparticles/Nanofluids for biomedical applications, 3) Nano-/Microstructures magnetic biosensors and bioMEMS for bioelectronics, 4) Extremely low frequency electomagnetic devices for therapeutics and healing, 5) Bioelectromagnetism and bioelectricity for neural engineering and neuromodulation, 6) Bioinstrumentation/medical electronics & devices for neurodegenerative diseases, 7) Nano-scale spintronics structures and devices for active/passive digital/analog electronics, 8) Nanostructured magnetic/electronics thin films and devices, 9) Designing and processing of materials for spintronics for advanced electronic devices, and 10) Bioelectric/spintronic based hybrid power generators for energy sustainability.

For more information please visit: https://Lisbon2021.rancongress.com/program

KEYNOTE LECTURE

JUNE 16 | 9:45 AM - 10:30 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY

Titles: Quantum Dot Nanotechnology for Bioimaging and Drug Delivery Applications

Dr. Swadeshmukul Santra, University Of Central Florida, USA

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Swadeshmukul Santra, PhD received his Ph. D. degree in chemistry from the Indian Institute of Technology Kanpur, India and postdoctoral study at the University of Florida.

Dr. Santra is a Professor at UCF holding a joint appointment with the NanoScience Technology Center and the Department of Chemistry. He is the Director of UCF Materials Innovation for Sustainable Agriculture (MISA) Center. He has been actively working in the field of Nanoscience and Nanotechnology for over 20 years. He has published 78 peer-reviewed research articles, 7 review articles, 11 book chapters and delivered 96 invited talks. He has been awarded 31 patents including 26 US patents. His research has been funded by NSF, USDA, Citrus Research and Development Foundation, Environmental Research and Education Foundation and several industries with a portfolio of over $5.6M research funding.

Dr. Santra is a Steering Committee Member of NanoFlorida International Conference 2019. He is serving as the Vice President of Florida Association for Nanobiotechnology (FAN), 2019-2021. He is the founding faculty member of NanoFlorida and UCF MISA Center. He is a member of several professional societies including ACS, MRS, AVS and AAAS.

SESSION
NANOMEDICINE, DRUG DELIVERY, AND TISSUE ENGINEERING II

JUNE 16 | 10:40 AM - 11:15 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER & DR. SEONGTAE BAE

Titles: Impact of Nanoparticles on Bacteria and Mycobacteria
NDDTE 201
Time: 10:40 - 10:55
Presenter: Josef Jampilek, Comenius University, Slovakia
Authors: Josef Jampilek, Martin Pisarcik

Titles: Tracking Phagosome-Derived Vesicles in Macrophages with Microfabricated Microparticles

NDDTE 203
Time: 10:55 - 11:10
Presenter: Wenhao Cheng, FAMU-FSU College of Engineering, USA
Authors: Wenhao Cheng, Sundol Kim, Sandra Zivkovic, Yi Ren, Hoyong Chung, Jingjiao Guan

Titles: pH-Sensitive Hybrid Nanoparticles for the Controlled Release of Tyrosine Kinase Inhibitors

NDDTE 101
Time: 11:10 - 11:15
Presenter: Andra-Sorina Tatar, Babes-Bolyai University, Romania
Authors: Andra-Sorina Tatar, Simion Astilean, Sanda Boca

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KEYNOTE LECTURE

JUNE 16 | 11:35 AM - 12:20 PM | SESSION CHAIR: DR. WOLFGANG ENSINGER

Titles: Development And Pre-Clinical Validation Of Multi-Functional Radiosensitising Nanoparticles - Successes And Challenges

Dr. Jonathan Coulter, Queen's University Belfast, UK

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Dr. Coulter is a Senior Lecturer, working within the Nanomedicine and Biotherapeutics research group at the School of Pharmacy, Queen's University Belfast. His research has always had a focus on developing strategies to overcome treatment resistance in cancer, with a specific focus on radiotherapy. His work has spanned approaches that include the use of suicide gene therapy and more recently exploiting the unique physical properties of high atomic number nanoparticles as radiosensitisers. Recent iterations have been developed as biologically active formulations, designed to overcome tumour microenvironment properties which are known to confer treatment resistance, in addition to the core particle acting as a radiation dose modifier. This presentation aims to outline some of the successes we have experienced in this space while looking to spark discussion around the key challenges that have limited clinical translation to date.

SESSION
NANOMATERIALS, NANODEVICES: FABRICATION, CHARACTERIZATION AND APPLICATION II

JUNE 16 | 12:20 PM - 12:45 PM | SESSION CHAIR: DR. WOLFGANG ENSINGER

Titles: Reduction of Pneumatic Pressure Loss in Nanoporous Media Using Vertically Aligned Nanochanels

ICNNFC 302
Time: 12:20 - 12:25
Presenter: Woong Ki Jang, Kangwon National University
Authors: Byeong Hee Tae, Woong Ki Jang, Byeong Hee Kim, Young Ho Seo

Titles: Investigation of the Metal Cations Adsorption Selectivity Using Nanocavities-Rich Polyamine-Cross-Linked PMVEAMA

ICNNFC 103
Time: Mateusz Pawlaczyk, 12:25 - 12:40
Presenter: Uniwersytetu Poznańskiego, Poland
Authors: Mateusz Pawlaczyk, Grzegorz Schroeder

Titles: Stability of Copper Nanoparticles in Media Imitating the Real Environment

ICNNFC 104
Time: Mateusz Pawlaczyk, 12:40 - 12:45
Presenter: Zuzana Bytešníková, Mendel University in Brno, Czech Republic
Authors: Zuzana Bytešníková, Martina Koláčková, Pavel Švec, Anna Jánová, Dalibor Húska, Vojtěch Adam, Lukáš Richtera Mateusz Pawlaczyk, Grzegorz Schroeder

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