



TANN²³

PROCEEDINGS OF THE 7th INTERNATIONAL CONFERENCE ON THEORETICAL AND APPLIED NANOSCIENCE AND NANOTECHNOLOGY (TANN 2023)

June 01 - 03, 2023 | Carleton University, Ottawa, Canada

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WELCOME MESSAGE FROM THE CONFERENCE CHAIR

On behalf of the International Academy of Science, Engineering and Technology (International ASET Inc.), the organizing committee would like to welcome you to the 7th International Conference on Theoretical and Applied Nanoscience and Nanotechnology (TANN 2023).

TANN 2023 is aimed to become one of the leading international annual conferences in the fields related to nanoscience and nanotechnology. This conference will provide excellent opportunities to the scientists, researchers, industrial engineers, and university students to present their research achievements and to develop new collaborations and partnerships with experts in the field.

TANN is a series of international conferences held yearly. These conferences focus on all aspects of Theoretical and Applied Nanoscience and Nanotechnology.

In the Seventh meeting of this conference, one plenary speaker and three keynote speakers will share their expertise with the aim of exposing participants to a wide spectrum of applications, and to foster crosspollination of ideas and develop new research interests. In addition, approximately 17 papers will be presented from professors, students, and researchers across the world.

We thank you for your participation and contribution to the 7th International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN 2023). We wish you a very successful and enjoyable experience.

Dr. Jin Zhang

Conference Chair

TANN 2023

Dr. Amirkianoosh Kiani

Conference Chair

TANN 2023

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ABOUT TANN 2023

The International Conference of International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN 2023) aims to become the leading annual conference in fields related to nanoscience and nanotechnology. The goal of TANN 2023 is to gather scholars from all over the world to present advances in the fields related to nanoscience and nanotechnology and to foster an environment conducive to exchanging ideas and information. This conference will also provide an ideal environment to develop new collaborations and meet experts on the fundamentals, applications, and products of the mentioned fields.

TANN is a series of international conferences held yearly. These conferences focus on all aspects of Theoretical and Applied Nanoscience and Nanotechnology. After successfully holding TANN'17 to TANN'22 in Canada, TANN 2023 is hosted in Carleton University, Ottawa, Canada as well this year. TANN 2023 is going to be held in a hybrid format, i.e. in person as well as online.

TANN is an acronym for **Theoretical, Applied, Nanoscience, and Nanotechnology.**

- All papers were peer-reviewed
- The congress proceedings are published under an ISSN and ISBN number
- Each paper is assigned a unique DOI number by [Crossref](#)
- The conference proceedings are indexed by [Scopus](#) and [Google Scholar](#)
- The proceedings are permanently archived in [Portico](#) (one of the largest community-supported digital archives in the world)

Google Scholar

Scopus

 Crossref


PORTICO

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SCIENTIFIC COMMITTEE

We would like to thank the following for accepting to act as a member of the Scientific Committee for the TANN 2023 Conference:

Scientific Committee Chairs



[Dr. Jin Zhang](#)
University of Western
Ontario, Canada
Conference Chair



[Dr. Amirkianoosh Kiani](#)
Ontario Tech
University, Canada
Conference Chair

Scientific Committee Members

- **Dr. Qammer H. Abbasi**, University of Glasgow, UK
- **Dr. Daolun Chen**, Toronto Metropolitan University (formerly Ryerson University), Canada
- **Dr. Jinju Chen**, Newcastle University, UK
- **Dr. Byoung-Chul Choi**, University of Victoria, Canada
- **Dr. Erik Díaz Cervantes**, Universidad de Guanajuato, Mexico
- **Dr. Bernadeta Dobosz**, Adam Mickiewicz University, Poland
- **Dr. Antonio Vicente Herrera Herrera**, Universidad de La Laguna, Spain
- **Dr. Shahram Karimi**, Lambton College of Applied Arts and Technology, Canada
- **Dr. Harri Lipsanen**, Aalto University, Finland
- **Dr. Kuldeep Mahato**, University of California, San Diego, USA
- **Dr. L.Q. Wang**, The University of Hong Kong, Hong Kong
- **Dr. Hande Yöndemli**, Selcuk University, Turkey

KEYNOTE SPEAKERS

The keynote information for the 7th International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN 2023) is as follows:

Plenary Speaker



[Dr. Aicheng Chen](#)
University of Guelph,
Canada

Keynote Speakers



[Dr. Muhammad Imran](#)
University of Glasgow, UK



[Dr. Zoran Miskovic](#)
University of Waterloo,
Canada



[Dr. Dejian Zhou](#)
University of Leeds, UK

PLENARY SPEAKER



Titles: Design and Electrochemical Study of Nanomaterials for Green Chemistry and Sensing Applications

[Dr. Aicheng Chen, University of Guelph, Canada](#)

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Aicheng Chen is Professor of Chemistry, Tier 1 Canada Research Chair in Electrochemistry and Nanoscience, and Director of the Electrochemical Technology Centre at the University of Guelph. His research interests span the areas of Electrochemistry, Photoelectrochemistry, Green Chemistry, and Nanoscience. He has published 270 peer-reviewed journal articles and book chapters. For his accomplishments, Prof. Chen has received a number of awards, including the Ontario Premier's Research Excellence Award, the Japan Society for the Promotion of Science Invitation Fellowship, the Lash Miller Award and the R.C. Jacobsen Award of the Electrochemical Society Canada Section, the Fred Beamish Award, the Keith Laidler Award and the W.A.E. McBryde Medal of the Canadian Society for Chemistry, the Canadian Catalysis Lectureship Award, and the RBC Innovation Award. He has also been named as Fellow of the Chemical Institute of Canada, Fellow of the Royal Society of Chemistry (UK), Fellow of the International Association of Advanced Materials, and Fellow of the International Society of Electrochemistry.

KEYNOTE SPEAKERS



Titles: Applied Nanoscience and Nanotechnology for Digital Connectivity
[Dr. Muhammad Imran, University of Glasgow, UK](#)

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Prof. Muhammad Ali Imran, based at the University of Glasgow, is a renowned international leader in the field of communication systems. With over 20 years of combined academic and industry experience, he has made pioneering contributions in the areas of self-organized cellular networks and energy-efficient communications, which have been widely cited, incorporated into standards, and adopted commercially. As the Principal Investigator for Scotland 5G Centre's urban testbed, Prof. Imran is at the forefront of cutting-edge research in 5G technology. He also leads a large research group with over 100 researchers in Scotland, and has played key roles in multi-million pound funded projects, serving as a consultant to international projects and local companies in the field of self-organised networks and 5G technology use cases.

In addition to his research accomplishments, Prof. Imran is an international promoter/ambassador for the UK's Higher Education sector, having successfully led transnational education initiatives. He is recognized with honors such as FIEEE, FIET, FRSE, FRSA, FEAI, and Senior Fellow HEA, showcasing his excellence in the field. Beyond his professional achievements, Prof. Imran is deeply passionate about sharing the benefits of technology equitably across society and is committed to mentoring young talent. His work reflects his dedication to advancing the field of communication systems and promoting the positive impact of technology on society.

KEYNOTE SPEAKERS



Titles: Theoretical Modelling of Interactions of Moving Charged Particles with Two-Dimensional Materials
Dr. Zoran Miskovic, University of Waterloo, Canada

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Zoran Miskovic obtained a PhD degree in Engineering Physics from the University of Belgrade, Serbia, in 1991 and he joined the Department of Applied Mathematics of the University of Waterloo, Canada, where he is now a professor of Mathematical Physics. His research is generally concerned with mathematical modeling and computational simulation of physical processes taking place when nanometer-sized structures interact with the surrounding media and with external probes. He currently focusses on modeling the interaction of heterostructures involving 2D materials with external charged particles in the context of the electron microscopy for applications in the areas of nano-plasmonics and nano-photonics, as well as on modeling electrochemical systems with graphene-based electrodes for applications in biochemical sensing and the capacitive energy storage. Besides research collaboration with several theoretical groups worldwide, he also collaborated with several experimental groups. He has published over 170 peer-reviewed articles, some of which appeared in journals like Nano Letters, Carbon, ACS Photonics, Nanoscale, Electrochimica Acta, Nanomaterials, etc.

KEYNOTE SPEAKERS



Titles: Developing a Polyvalent Multifunctional Nanoparticle Strategy to Address Some Biological and Biomedical Challenges

[Dr. Dejian Zhou, University of Leeds, UK](#)

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Dejian Zhou is Professor in Nanochemistry, Fellow of the Royal Society of Chemistry (FRSC) and PI member of School of Chemistry, Astbury Centre for Structural Molecular Biology and Bragg Centre for Materials Research, University of Leeds. He obtained his BSc and PhD degrees in Chemistry both from Peking Univ. (China) in 1990 and 1995, respectively. He pursued postdoctoral research at Cranfield (1997-00) and Cambridge (2000-07) before being appointed to a Senior Lectureship (2007), and then promoted to full Professor of Nanochemistry (2018) at Leeds. He is pursuing a polyvalent multifunctional nanoparticle (PMN) strategy to address some important unmet biomedical challenges, e.g. novel glycan-PMNs for probing biophysical and structural mechanisms of multivalent protein-sugar interactions for potential therapeutic interventions, as well as new multi-ligand functionalised PMNs for anticancer and antibacterial applications. He received the Chinese Chemical Society Young Chemist Award (1996) and serves as an associate editor or editorial board member for several Elsevier on Wiley journals. He has published >150 peer-reviewed journal papers, including >30 in leading high impact journals (IF >10, e.g. Nature Nanotech, J. Am. Chem. Soc., Angew. Chem., Adv. Mater. etc) and two research highlights on the BBC.

LIST OF PAPERS

The following papers were presented at the 7th International Conference on Theoretical and Applied Nanoscience and Nanotechnology (TANN 2023)

Nanomaterials & Nanodevices

[Effect of Nanoparticle on Microstructure and Mechanical Properties of Aluminum Alloy for Vehicles](#)

Authors: Jae Pil Jung, Do Hyun Jung, Seong Min Seo, Sri Harini Rajendran

[Wear Characteristics of AISI 4140 under Nano Fly Ash Based Engine Oil](#)

Authors: Harvinder Singh, Yogesh Kumar Singla

[Synthesis and characterization of copper oxide nanoparticles and its influence on pearl millet \(*Pennisetum gluacum L.*\) under drought conditions](#)

Authors: Harsha K Chandrashekhar, Gunjan Singh, Arya Kaniyassery, Thorat Sachin Ashok, Roopa Nayak, Thokur Sreepathy Murali, and Annamalai Muthusamy

[Probing Electronic Structure of Co-Doped Sr₂SnO₃ Using X-Ray Absorption near Edge Spectroscopy and Photoemission](#)

Authors: Yogesh Kumar

[High-Performance Cs₂GeBr₃ Perovskite/ WS₂ Nano-Flakes Field-Effect Transistor In Vacuum](#)

Authors: Y. Rezaei Nik, A. Reyhani, S. Farjami-Shayesteh, S.Z. Mortazavi, R. Karimi, and M. Teimouri

[Microfluidic Silicon-based Analytical Devices for glucose Analysis](#)

Authors: Amirkianoosh Kiani, Hossein Ebadi

[Cracking the Code to Electrode-Specific Degradation: Insights from Data-Driven Approaches in ULPING Fabricated Pseudocapacitor](#)

Authors: Amirkianoosh Kiani, Kavian Khosravinia

[Si-Au hybrid Nanostructure Synthesis by Varying the Pulse Repetition of the ULPING Technique](#)

Authors: Amirkianoosh Kiani, Nishant Singh Jamwal

LIST OF PAPERS

Nanobiotechnologies & Nanomedical Application

[Green synthesis of Silver Nanoparticles Using Garlic Extract with Enhanced Antibacterial Activities Against Lactobacillus Acidophilus](#)

Authors: N. Nikookar, D. Ghaznavi, M. Rezaei Nik, H. Zeighami, M. Tavakolizadeh, Y. Rezaei Nik and A. Pakravan

[Hyperspectral Analysis on the Photosynthetic PS-II system: Study on Chlamydomonas reinhardtii](#)

Authors: Dhillippan Mamsapuram Panneerselvam, Muthukumaran Packirisamy

[Preparation of Nanocellulose-Based Biomaterials for Biomedical Applications](#)

Authors: Zainab Al Tamimi, Saeed Tiari, Xiaoxu Ji, Davide Piovesan, Allen R. Madura, Longyan Chen

Virtual Session

[FRET-Enhanced Singlet Oxygen Generation by Nanocomposites Based on Ternary AgInS₂/ZnS Quantum Dots and Porphyrin Derivatives](#)

Authors: Tatiana Oskolkova, Ekaterina Smirnova, Lyubov' Borodina, Elena Svirshchevskaya, Andrey Veniaminov, Anna Orlova

[Application of MIL-88/g-C₃N₄ Nanocomposite Photocatalyst in Organic Pollutant Degradation in Water](#)

Authors: Chung-En Tan, En-Chin Su, Ming-Yen Wey

Posters Session

[Nano-Islands from ultra-thin gold films for plasmonic sensing application](#)

Authors: Kyana Mohammadi, Duraichelvan Raju, Simona Badilescu, Anirban Ghosh, Muthukumaran Packirisamy

SPONSORS

International ASET Inc. would like to thank the following sponsors for their support of TANN 2023:



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JOURNAL PUBLICATION

Selected articles from the conference will be published in the International Journal of Theoretical and Applied Nanotechnology (IJTAN) after a secondary review process.

This journal has adopted to the open-access model, meaning all free access to the journal's articles and content with no need for subscription. This ensures larger audience and therefore higher citations.

All published papers of IJTAN will be submitted to Google Scholar. Additionally, they will be permanently archived in Portico (one of the largest community-supported digital archives in the world) and will be assigned unique DOIs.

Please visit the following website for the respected journal:

IJTAN: <https://ijtan.avestia.com>

TANN 2024

8th International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN 2024) will be held on June, 2024 in UAE.



For inquiries and to obtain further information on the congress, please visit the [website](http://2024.tannconference.com)

You can also email info@tannconference.com or call us at: +1-613-834-9999

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ETHICS & MALPRACTICE

At International ASET Inc., we take matters that relate to ethics in publishing very seriously. We believe that the peer-review publication process is a vital building block of academia, and its integrity must be maintained at all costs, which is why every article will be peer-reviewed by several experts in the field. Under peer-review, experts in the related fields are required to provide opinions and comments on the improvements of the submissions.

We are proud of our efforts towards abiding by the guidelines of ethics, integrity, and high standards in publishing.

Following are the ethics guidelines set by the organizers for the authors and the reviewers of the conference:

Scientific Committees

Scientific committees consisting of experts in the fields are established. The committees oversee the peer-review and publication process. To see the scientific committee members, please follow the link: [Scientific Committee](#)

Equality and Decisions

One or more reviewer, scientific committee member, or chair, (internal or external), are responsible for evaluating the relevance of the submitted manuscripts to the proceedings, technical and scientific merit, originally, and impact. These evaluations are to be carried out regardless of ethnicity, religion, gender, sexual orientation, political beliefs, and institutions. Successive to peer-review, the Chair has full authority and is solely responsible for the published content and the process thereof.

Confidentiality

Scientific committee member(s) and publishing staff may not disclose manuscripts or their content, directly or indirectly, to anyone other than individuals invited to review the manuscript (whether they accept or not), other reviewers of the same publications, and publishing staff.

Conflicts of Interest

Scientific committee member(s) and publishing staff may not utilize the contents of submitted manuscripts whether accepted or rejected, directly or indirectly for their own research purposes without prior written consent by the authors.

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Reviewers

Contribution to Decisions

In order for final decisions to be made regarding acceptance or rejection of papers, we rely on peer-review. Peer-review is the process of experts in the field reading, understanding, and objectively commenting on submitted papers. Through peer-review, scholars give back to the academic and scientific community by helping the chair(s) make decisions regarding manuscripts.

Promptness

Reviewers should promptly notify the chair(s) if they are unable or unqualified to carry out their reviewing duties. Reviewers should do their best to provide the reviews to the chair(s) as promptly as possible, and within the designated time-frame.

Acknowledgment of Source

The reviewer should notify the chair(s) if they find any similarities in the paper being reviewed and any other work that has been published previously.

Confidentiality

Reviewers must not share the contents of the manuscripts they receive for review, regardless of their decision to review or contents of the review, directly or indirectly, with anyone other than the person who has assigned the review.

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Reviewers should review manuscripts fairly and objectively, with supporting evidence or arguments, regardless of personal feelings or biases.

Conflicts of Interest:

Invited reviewers should immediately inform the chair(s) in case of a conflict of interest based on competitive, collaborative, personal, family, and other relationships with the authors or people involved in the work.

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Authors

Reporting Standards

The paper being submitted for the proceedings should be based on clear objective, discussion, and references. The findings, data, and the arguments being used in the paper should be accurate. It is author's responsibility to guarantee the authenticity of the data in the paper.

Authorship

Only persons who have significantly contributed to the work and the manuscript can be named authors on a paper. These contributions include the idea/concept, design, experiments, evaluation, analysis, drafting or revision of the manuscript, and others. Authors must all have agreed to be named as such and for the manuscript to be submitted. Anyone who has contributed based on the above, but the level of contribution is not significant, may appear in the acknowledgement section of the manuscript.

Acknowledgement of Source

Acknowledgement to other's work being used in the paper must be given at all times. Authors of the paper should give comprehensive credit where it is necessary, by citing the work, they use for supporting their own research.

Accuracy, Originality, and Plagiarism

Authors should describe their work and the results of their work accurately and in full. The level of provided accuracy and detail should be such that a reader can replicate the work independently. Inaccurate, incomplete, fraudulent, and misleading statements are considered unacceptable and unethical. Direct or indirect use of other people's work is not allowed, unless properly cited. Previous works that have influenced the current work should also be cited. Presenting someone else's work as one's own is strictly prohibited and is considered plagiarism.

Data and Material

Authors are encouraged to share their data, software, or other sharable material online, provided copyright and ownership laws surrounding that particular project permit. Authors may also be asked to share such material with the chair(s), and/or reviewers, and must be willing to do so if asked.

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Dual Submissions

Submitting a manuscript to more than one venue (conference, journal, etc) simultaneously is not allowed. Presenting previously published work to be considered as a new submission, without a significant new interpretation or analysis, is prohibited.

Conflicts of Interest

Authors must notify the chair(s) at the time of submission, if any factor outside the scope of the research has influenced any step of the work and manuscript writing. Examples of such factors include but are not limited to funding, grants, advisory and consultancy, stock ownership, current or past employment, and memberships, among others. All funding sources should be disclosed in the manuscript.

Animal and Human Subjects

Works involving human and/or animal subjects must ensure that the work has abided by institutional guidelines, and pre-approved by required bodies. Moreover, consent must be acquired from participants, and privacy of subjects must be ensured. All of the above must be specified with clear statements in the manuscript.

Hazardous Material

It should clearly be identified in the manuscripts if the works have involved hazardous chemicals and material, or devices that can be harmful.

Reporting of Mistakes, Errata, and Retractions

If an author identifies a major error in a published paper, he/she must immediately inform the publisher. Regardless of whether a significant error is reported by the authors of the work or other readers, authors are obligated to take the necessary steps to correct the issue. It is decided on a case-by-case basis whether an erratum will be submitted to notify future readers of the error and correction, or whether the paper will be retracted. Unethical/plagiarism issues mostly result in a retraction, while unintended mistakes will mostly result in the publication of an erratum.

ETHICS & MALPRACTICE

Publisher

Errata and Retractions

The publisher takes the necessary steps to prevent mistakes, academic and scientific misconduct, and unethical behavior, both intended and unintended. When mistakes are reported, the publisher works with chair(s) and authors to publish an erratum clarifying the issue. In cases where the mistakes are severe and significant, the paper might be retracted. If unethical behavior, plagiarism, academic and scientific misconduct, or other such activities are proven to have taken place by an author or authors, the publisher will retract the paper.

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Schedule:

This conference proceeding accompanies the conference, meaning a new proceedings will be published every year for the corresponding annual conference of this series.

CONTACT US

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