



TANN²¹

PROCEEDINGS OF THE 5TH INTERNATIONAL CONFERENCE ON THEORETICAL AND APPLIED NANOSCIENCE AND NANOTECHNOLOGY (TANN'21)

May 23 - 25, 2021 | ~~Niagara Falls, Canada~~ | Virtual Conference

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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 5th International Conference on Theoretical and Applied Nanoscience and Nanotechnology (TANN'21).

TANN'21 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'21 is a series of international conferences which are held yearly. These conferences focus on all aspects of traditional and modern control and dynamic systems. Due to COVID-19, we have made the decision to hold the 5th International Conference on Theoretical and Applied Nanoscience and Nanotechnology (TANN'21). virtually this year.

In the fifth meeting of this conference, one plenary speaker and four 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 08 papers will be presented from professors, students, and researchers across the world.

We thank you for your participation and contribution to the 5th International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN'21). We wish you a very successful and enjoyable experience.

Dr. Jin Zhang
Conference Chair
TANN'21

Dr. Amirianoosh Kiani
Conference Co-Chair and Proceedings Editor
TANN'21

ABOUT TANN'21

The International Conference of International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN'21) aims to become the leading annual conference in fields related to nanoscience and nanotechnology.

The goal of TANN'21 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 nanoscience and nanotechnology. Due to COVID-19, we have made the decision to hold the 5th International Conference on Theoretical and Applied Nanoscience and Nanotechnology (TANN'21). virtually this year.

TANN is an acronym for **T**heoretical, **A**ppplied, **N**anoscience, and **N**anotechnology.

The proceedings are published in Ottawa, Canada.

All papers were peer-reviewed

The congress proceedings is published under an ISSN and ISBN number

Each paper is assigned a unique DOI number by [Crossref](#)

The conference proceedings is indexed by [Google Scholar](#)

The proceedings is permanently archived in [Portico](#) (one of the largest community-supported digital archives in the world)

 Google Scholar

 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'21 Conference:

Scientific Committee Chairs



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



[Dr. Amirianoosh Kiani](#)
**Ontario Tech
University, Canada**
Conference Co-Chair

Scientific Committee Members

- **Dr. M.P. Anantram**, University of Washington, USA
- **Dr. Byoung-Chul Choi**, University of Victoria, Canada
- **Dr. Harri Lipsanen**, Aalto University, Finland
- **Dr. Wilfred van der Wiel**, University of Twente, Netherlands
- **Dr. Shahram Karimi**, Lambton College of Applied Arts and Technology, Canada
- **Dr. Roger Newman**, University of Toronto, Canada
- **Dr. Mohsen Rahmani**, Nottingham Trent University, UK
- **Dr. Liang Feng**, University of Pennsylvania, USA
- **Dr. Ya-Hong Xie**, University of California, USA
- **Dr. Qammer Abbasi**, University of Glasgow, UK

KEYNOTE SPEAKERS

The keynote information for the 5th International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN'21) is as follows:

Plenary Speaker



[Dr. Sihong Wang](#)
University of Chicago, USA

Keynote Speakers



[Dr. Mohsen Rahmani](#)
Nottingham Trent
University, UK



[Dr. Liang Feng](#)
University of Pennsylvania,
USA



[Dr. Roger Newman](#)
University of Toronto,
Canada



[Dr. Qammer Abbasi](#)
University of Glasgow, UK

PLENARY SPEAKER



Titles: Material and Device Designs in Biomimetic Polymer Electronics
[Dr. Sihong Wang, University of Chicago, USA](#)

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Sihong Wang is an Assistant Professor in the Pritzker School of Molecular Engineering at the University of Chicago, USA. He received his Ph.D. degree in Materials Science and Engineering from the Georgia Institute of Technology in 2014 under the supervision of Prof. Zhong Lin Wang, and his Bachelor's degree from Tsinghua University in 2009. From 2015 to 2018, he was a postdoctoral fellow with Prof. Zhenan Bao in Chemical Engineering at Stanford University. He has published over 60 papers in numerous high-impact journals, including Nature, Science, Nature Materials, Nature Electronics, Nature Communications, Science Advances, Advanced Materials, Energy & Environmental Science, etc. His research group currently focuses on soft polymeric bioelectronic materials and devices as the new generation of technology for biomedical studies and practices. As of March 2021, his research has been cited more than 14,200 times and he has an H-index of 54. He was recognized as a Highly Cited Researcher by Clarivate Analytics in 2020, and was awarded MIT Technology Review 35 Innovators Under 35 (TR35 Global List), MRS Graduate Student Award, Chinese Government Award for Outstanding Students Abroad, Top 10 Breakthroughs of 2012 by Physics World, etc.

KEYNOTE SPEAKERS



Titles: Metasurfaces: New Generation Building Blocks For Emerging Optics
Dr. Mohsen Rahmani, Nottingham Trent University, UK

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Mohsen Rahmani is an Associate Professor at Nottingham Trent University. His research activities span over light-matter interactions with various subwavelength nanoparticles for applications in flat optics, near-infrared imaging, bio-sensing, etc. He has obtained his PhD from the National University of Singapore in 2013, followed by postdoc fellowship at Imperial College London, and the Australian Research Council Early Career Fellowship at the Australian National University (ANU). In 2020, he has moved to the Nottingham Trent University as a Royal Society Wolfson Fellow, and has recently been awarded by the UK Research and Innovation Fellowship. Associate Professor Rahmani has delivered 20+ invited talks, seminars and keynotes in international conferences, and has published more than 60 peer-reviewed journal papers (H-index=31). He is the recipient of several prestigious awards and prizes including the Australian Eureka Prize, Early Career Medal from the International Union of Pure and Applied Physics, and the Australian Optical Society Geoff Opat Award. In 2020 he has been promoted to the senior member of Optical Society of America and IEEE.



Titles: Symmetry Driven Photonics for New Active Functionality On-Chip
Dr. Liang Feng, University of Pennsylvania, USA

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Liang Feng is an Associate Professor of Materials Science & Engineering (MSE) and Electrical and Systems Engineering (ESE) at the University of Pennsylvania. He received his Ph.D. in Electrical Engineering from UCSD in 2010, and was subsequently a postdoc researcher in the Department of Electrical Engineering at California Institute of Technology and NSF Nanoscale Science and Technology Center at UC Berkeley. Prior to joining Penn in 2017, he was an assistant professor of SUNY Buffalo from 2014 to 2017. Currently his research interests include optical and photonic materials, quantum optics, nanophotonics, and optoelectronics. He has authored and coauthored 77 papers in Science, Nature Materials, Nature Photonics, PRL, etc. He is an OSA fellow and a recipient of Sloan Research Fellow, NSF CAREER and ARO Young Investigator awards.

KEYNOTE SPEAKERS



Titles: Advanced Characterization and Modification of Nanoporous Metals
Dr. Roger Newman, University of Toronto, Canada

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Roger Newman has been a Professor in the Department of Chemical Engineering and Applied Chemistry at the University of Toronto since 2004. Before that, he spent 20 years as an academic in Manchester, UK, and also spent some years at Brookhaven National Laboratory. His main research specialty is metallic corrosion, but ever since the 80s, he has had an activity in nanomaterials, specifically nanoporous metals, which are created by a kind of electrochemical corrosion process. He has received a number of international awards and Fellowships for corrosion research.



Titles: Nanoscale Future Healthcare using Terahertz
Dr. Qammer Abbasi, University of Glasgow, UK

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Qammer H. Abbasi, received his BSc and MSc degree in electronics and telecommunication engineering from University of Engineering and Technology (UET), Lahore, Pakistan (with distinction). He received his Ph.D. degree in Electronic and Electrical engineering from Queen Mary University of London (QMUL), U.K., in Jan., 2012. From 2012 to June 2012, he was Post-Doctoral Research Assistant in Antenna and Electromagnetics group, QMUL, UK. From 2012 to 2013, he was international young scientist under National Science Foundation China (NSFC), and Assistant Professor in University of Engineering and Technology (UET), KSK, Lahore. From August, 2013 to April 2017 he was with the Center for Remote healthcare Technology and Wireless Research Group, Department of Electrical and Computer Engineering, Texas A & M University (TAMUQ) initially as an Assistant Research Scientist and later was promoted to an Associate Research Scientist and Visiting lecture where he was leading multiple Qatar national research foundation grants.

For more information, please visit:

<https://tanconference.com/keynote-speakers/>

LIST OF PAPERS

The following papers were presented at the 5th International Conference on Theoretical and Applied Nanoscience and Nanotechnology (TANN'21)

Nanomaterials, Nanodevices: Fabrication, Characterization and Application

Titles: Mechanistic Insight into the Phosphodiester Bond Hydrolysis of Nanozymes
Authors: Adam Pecina, Paolo Scrimin, Fabrizio Mancin, Marco De Vivo

[View Paper](#)

Titles: Embedment of nano-graphene in metal deposits via cold spraying
Authors: Wen Sun, Adrian Wei-Yee Tan, Kaiqiang Wu, Ayan Bhowmik, Iulian Marinescu, Erjia Liu

[View Paper](#)

Titles: Machine Learning Approach for TiO₂ Electrode in Supercapacitor Fabrication
Authors: Amirhossein Gholami, Amirkianoosh Kiani

[View Paper](#)

Titles: New Generation of Tio₂ Electrode in Supercapacitor
Authors: Amirhossein Gholami, Amirkianoosh Kiani

[View Paper](#)

LIST OF PAPERS

Nanomaterials, Nanodevices: Fabrication, Characterization and Application

Titles: Applied Nanopore Fabrication Techniques for DNA and Protein Sensing

Authors: Cuifeng Ying

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Titles: Two-Dimensional Supersymmetric Microring Laser Arrays

Authors: Xingdu Qiao, Bikashkali Midya, Zihe Gao, Zhifeng Zhang, Haoqi Zhao, Tianwei Wu, Jieun Yim, Ritesh Agarwal, Natalia M. Litchinitser, Liang Feng

[View Paper](#)

Titles: Increased Adhesion Force Due to Increased Conductivity in PEDOT:PSS/PEO Spun-coated Nanofilm

Authors: Raymond Christopher Setiawan, D.Y. Li

[View Paper](#)

Titles: Ternary QD–Organic Dye FRET Pairs for Cytometry-Compatible Sensing Platform

Authors: Maksim Miropoltsev, Vera Kuznetsova, Viktoria Osipova, Anton Tkach, Alexander Baranov

[View Paper](#)

Titles: Deposition of Silver Nanoparticles on Silicone hydrogels by Using Laser-Assisted Process

Authors: Vishnuvardhana Wuppaladhodi, Jin Zhang

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SPONSORS

International ASET Inc. would like to thank the following sponsors for their support of TANN'21:



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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.

The publication fee will be waived for papers that win the best paper award. Other attendees will receive a 25% discount towards the publication fee of the journal.

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.

Users are allowed to read, download, copy, distribute, print, search, or link to the full texts of the articles in this journal without asking prior permission from the publisher or the author. This is in accordance with the BOAI definition of open access.

All published papers of IJTAN will be submitted to Google Scholar, Microsoft Academic Search, Open J-Gate, Mendeley, Index Copernicus International, Academic Index, Mendeley, Primo Central, and Genomics JournalSeek for possible indexing. 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.

TANN'22

6th International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN'22) will be held on June 2, 2022 - June 4, 2022 in Niagara Falls, Canada.



For inquiries and to obtain further information on the congress, please visit the [website](http://2022.tannconference.com)

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

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ETHICS & MALPRACTICE

Publication Ethics and Publication Malpractice Statement

The following statement is mainly based on the [Code of Conduct and Best-Practice Guidelines for Journal Editors](#) (Committee on Publication Ethics, 2011).

Scientific Committee

Scientific Committee

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 below.

[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.

ETHICS & MALPRACTICE

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.

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.

Thoroughness

Reviewers should thoroughly read, understand, and provide constructive feedback with the aim of improving the manuscript. Reviewers should aim to identify and report technical issues, irregularities, mistakes, missing citations, and similarity to other published work.

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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

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.

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.

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.

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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.

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If an author identifies a major error in a published paper, he/she must immediately identify 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.

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at: +1-613-834-9999

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