



# PROCEEDINGS OF THE 5TH WORLD CONGRESS ON RECENT ADVANCES IN NANOTECHNOLOGY (RAN'20)

October 11, 2020 - October 13, 2020 | ~~LISBON, PORTUGAL~~  
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 5<sup>th</sup> World Congress on Recent Advances in Nanotechnology (RAN'20).**

Due to COVID-19 the 5th World Congress on Recent Advances in Nanotechnology (RAN'20) which was supposed to be held in Lisbon, Portugal will be held virtually instead on October 11 - 13, 2020.

RAN is aimed to become one of the leading international annual congresses in the field of nanotechnology. This congress 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.

While each conference consists of an individual and separate theme, the 2 conferences share considerable overlap, which prompted the organization of this congress. The goal of this undertaking is to bring together experts in each of the specialized fields, and at the same time allow for cross pollinations and sharing of ideas from the other closely related research areas.

We thank you for your participation and contribution to the 5<sup>th</sup> World Congress on Recent Advances in Nanotechnology (RAN'20). We wish you a very successful and enjoyable experience.

**Dr. Wolfgang Ensinger**  
*Congress Chair and Proceedings Editor*  
RAN'20

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# ABOUT RAN'20

**RAN is aimed to become one of the leading international annual congresses in the field of nanotechnology.**

This congress 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.

There are 2 conferences included in the RAN Congress:

[ICNNFC'20](#) - 5<sup>th</sup> International Conference on Nanomaterials, Nanodevices, Fabrication and Characterization

[NDDTE'20](#) - 5<sup>th</sup> International Conference on Nanomedicine, Drug Delivery, and Tissue Engineering

While each conference consists of an individual and separate theme, the 2 conferences share considerable overlap, which prompted the organization of this congress. The goal of this undertaking is to bring together experts in each of the specialized fields, and at the same time allow for cross pollinations and sharing of ideas from the other closely related research areas.

**RAN** is an acronym for **R**ecent **A**dvances in **N**anotechnology.

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

[Google Scholar](#)

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[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 RAN'20 Congress:

## Scientific Committee Members for ICNNFC'20

- **Dr. Erik Díaz-Cervantes**, Universidad de Guanajuato, Mexico
- **Dr. Daolun Chen**, Ryerson University, Canada
- **Dr. Moshi Geso**, RMIT University, Australia
- **Dr. Bilgin Kaftanoğlu**, Atilim University, Turkey
- **Dr. Byeong Hee Kim**, Kangwon National University, South Korea
- **Dr. Philippe Knauth**, Aix Marseille University, France
- **Dr. Nipin Kohli**, Guru Nanak Dev University, India
- **Dr. Muhammad Maqbool**, The University of Alabama at Birmingham, USA
- **Dr. Cristian Miranda**, Empresa de Servicios Tecnológicos (EST) – Universidad de Concepcion, Chile
- **Dr. Petr Němec**, University of Pardubice, Czech Republic
- **Dr. NoKuk Park**, Yeungnam University, South Korea
- **Dr. Karin Popa**, European Commission, Joint Research Centre (JRC), Germany
- **Dr. Federico Rosei**, INRS, Canada
- **Dr. Reyes Sierra**, The University of Arizona, USA
- **Dr. Thirumany Sritharan**, Nanyang Technological University, Singapore
- **Dr. Takuya Tsuzuki**, Australian National University, Australia
- **Dr. Maria Luisa Di Vona**, University of Rome Tor Vergata, Italy
- **Dr. Jie Yang**, RMIT University, Australia
- **Dr. Hande Yondemli**, Selcuk University, Turkey
- **Dr. Julia Xiaojun Zhao**, University of North Dakota, USA

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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 RAN'20 Congress:

## Scientific Committee Members for NDDTE'20

- **Dr. Konstantinos Avgoustakis**, University of Patras, Greece
- **Dr. Stephen Evans**, University of Leeds, UK
- **Dr. Todd Giorgio**, Vanderbilt University, USA
- **Dr. Moshi Geso**, RMIT University, Australia
- **Dr. Jingjiao Guan**, Florida State University, USA
- **Dr. Mariko Kawai**, Kansai Women's University, Japan
- **Dr. Jimin Lee**, Kangwon National University, South Korea
- **Dr. Andre Skirtach**, Ghent University, Belgium

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# KEYNOTE SPEAKERS

The keynote information for the 5th World Congress on Recent Advances in Nanotechnology (RAN'20) is as follows:

## Plenary Speaker



### [Dr. Philippe Knauth](#)

Aix Marseille University, France

**ICNNFC'20 Plenary Speaker**

## Keynote Speakers



### [Dr. Federico Rosei](#)

Institut National de la Recherche Scientifique (INRS), Canada

**ICNNFC'20 Keynote Speaker**



### [Dr. Maria Luisa Di Vona](#)

University of Rome Tor Vergata, Italy

**ICNNFC'20 Keynote Speaker**



### [Dr. Josef Jampilek](#)

Universidade de Santiago de Compostela, Spain

**NDDTE'20 Keynote Speaker**



### [Dr. Maria José Alonso](#)

Universidade de Santiago de Compostela, Spain

**NDDTE'20 Keynote Speaker**

# PLENARY LECTURE

OCTOBER 12 | 9:10 AM - 10:10 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY



**Titles:** Nanophase-separated Ionomers For Energy and Environment

[Dr. Philippe Knauth, Aix Marseille University, France](#)

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Philippe Knauth obtained a PhD in physical chemistry from Saarland University (Germany) in 1987 and the habilitation in materials science at Aix Marseille University in 1996.

He is currently Professor of Materials Chemistry and Head of the Department of Chemistry at Aix Marseille University. He is fellow of the French Chemical Society (“membre distingué”) and was appointed Visiting Scholar at MIT (Cambridge, USA) in 1997-98 and 2013, invited Professor at the National Institute of Materials Science (Tsukuba, Japan) 2007 and 2010, and invited Professor at the University of Rome Tor Vergata in 2009 and 2011.

He is member of the editorial boards of the “Journal of Electroceramics”, “Membranes”, “Frontiers in Energy Research”, and the “Journal of Nanomaterials”.

His research interests include solid state ionics and ionic conduction near interfaces; nanostructured materials for energy storage and conversion; polymer electrolytes for electrochemical energy technologies; lithium-ion microbatteries based on  $\text{TiO}_2$  nanotubes and nanocrystalline  $\text{CeO}_2$ .

190 articles in international journals (7300 citations, h index = 43), 7 co-edited books, 6 patents and 75 invited, keynote and plenary talks at international conferences.. Wei Lu is Professor at the Mechanical Engineering Department, University of Michigan, Ann Arbor, and Director of research center: Advanced Battery Coalition for Drivetrains. He uses multi-scale and multi-physics approaches to analyze battery degradation.

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



# KEYNOTE LECTURE

OCTOBER 13 | 9:00 AM - 9:45 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY



**Titles:** Multifunctional Materials for Emerging Technologies

[Dr. Federico Rosei, Institut National de la Recherche Scientifique \(INRS\), Canada](#)

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Federico Rosei received MSc (1996) and PhD (2001) degrees from the University of Rome “La Sapienza”. He held the Canada Research Chair (Junior) in Nanostructured Organic and Inorganic Materials (2003–2013) and since May 2016 he holds the Canada Research Chair (Senior) in Nanostructured Materials. He is Professor at the Centre Énergie, Matériaux et Télécommunications, Institut National de la Recherche Scientifique, Varennes (QC) Canada, where he served as Director from July 2011 to March 2019. Since January 2014 he holds the UNESCO Chair in Materials and Technologies for Energy Conversion, Saving and Storage.

Dr. Rosei’s research interests focus on the properties of nanostructured materials, and on how to control their size, shape, composition, stability and positioning when grown on suitable substrates. He has extensive experience in fabricating, processing and characterizing inorganic, organic and biocompatible nanomaterials. His research has been supported by multiple funding sources from the Province of Quebec, the Federal Government of Canada as well as international agencies, for a total in excess of M\$ 16. He has worked in partnership with over twenty Canadian R&D companies. He is co-inventor of three patents and has published over 325 articles in prestigious international journals (including Science, Nature Photonics, Proc. Nat. Acad. Sci., Adv. Mater., Angew. Chem., J. Am. Chem. Soc., Adv. Func. Mater., Adv. En. Mat., Nanolett., ACS Nano, Biomaterials, Small, Phys. Rev. Lett., Nanoscale, Chem. Comm., Appl. Phys. Lett., Phys. Rev. B, etc.), has been invited to speak at over 320 international conferences and has given over 240 seminars and colloquia, over 55 professional development lectures and 40 public lectures in 45 countries on all inhabited continents. His publications have been cited over 13,000 times and his H index is 58.

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

# KEYNOTE LECTURE

OCTOBER 13 | 9:45 AM - 10:30 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY



**Titles:** Nanometric Building Blocks in Composite Ionic Conductors

[Dr. Maria Luisa Di Vona, University of Rome Tor Vergata, Italy](#)

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Maria Luisa Di Vona, Laurea in Chemistry cum Laude, University of Rome La Sapienza. Professor of Chemistry at the University of Rome Tor Vergata. Responsible of the International Laboratory “Ionomer Materials for Energy (LIME)” at the Department of Industrial Engineering,

Invited Professor at the University Aix Marseille, France and the National Institute for Materials Science NIMS, Japan.

Research topics:

- Solid electrolytes for energy (fuel cells, electrolysers, redox flow batteries, batteries)
- Organic-inorganic hybrid materials for energy, environmental and biomedical applications
- Materials for gas sensors

Publications: 179 (142 in international journals, 5 chapters, 2 books, 3 patents, 27 in conference proceedings) H index: 34

# KEYNOTE LECTURE

OCTOBER 12 | 10:20 AM - 11:15 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY



**Titles:** Impact of Nanoparticles on Pathogenic Fung

[Dr. Josef Jampilek, Comenius University, Slovakia](#)

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Josef Jampilek completed his Ph.D. degree in Medicinal Chemistry at the Faculty of Pharmacy of the Charles University (Czech Republic) in 2004. In 2004-2011, he worked in expert and managerial posts in the R&D Division of the pharmaceutical company Zentiva (Czech Republic). Prof. Jampilek deepened his professional knowledge at the Medicinal Chemistry Institute of the Heidelberg University (Germany) and at multiple specialized courses. In 2017, he was designated as a Full Professor of Medicinal Chemistry. At present he works at the Regional Centre of Advanced Technologies and Materials, Palacky University in Olomouc (Czech Republic) and the Faculty of Natural Sciences, Comenius University in Bratislava (Slovakia). In addition, he is a visiting professor at the University of Silesia in Katowice (Poland) and Hong Kong Baptist University (Hong Kong SAR, China) and an invited professor/expert at various higher educational institutions. He is an author/co-author of more than 30 patents/patent applications, more than 200 peer-reviewed scientific publications, 7 university textbooks, more than 30 chapters in monographs, and many invited lectures at international conferences and workshops. He also received several awards for his scientific results, e.g., from Aventis, Elsevier, Willey, Sanofi and FDA. The research interests of Prof. Jampilek include design, synthesis, and structure-activity relationships of heterocyclic compounds as anti-invasive and anti-inflammatory agents as well as nanosystems. He is also interested in ADME, drug bioavailability and solid-state pharmaceutical analysis.

# KEYNOTE LECTURE

OCTOBER 13 | 10:40 AM - 11:25 AM | SESSION CHAIR: DR. WOLFGANG ENSINGER, TECHNISCHE UNIVERSITÄT DARMSTADT, GERMANY



**Titles:** Nanotechnology as a Tool to help Macromolecules Overcoming Biological Barriers

[Dr. Maria José Alonso, Universidade de Santiago de Compostela, Spain](#)

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María José Alonso's lab has pioneered numerous discoveries in the field of Pharmaceutical Nanotechnology and nanomedicine. She has coordinated several research consortia financed by the WHO, the Gates Foundation and the European Commission. She is the author of 290 scientific contributions with more than 29,400 cites (H factor 90) and the inventor of 22 patent families. Because of the quality of her scientific articles she has been among the TOP TEN in Pharmacology (Times Higher Education international ranking, 2010). Recently, she become part of the "Power List" of the most influential researchers in the field of Biopharmaceuticals (The Medicine Maker, 2020)

She has served to the Release Society (CRS) for 15 years and she is currently Past President of the Controlled Release Society (CRS). She is also Editor-in-Chief of the Drug Delivery and Translational Research, an official journal of the CRS, and she is part of the editorial board of 11 journals.

She has received 33 awards, among them the "Research and Education Excellence Medal" granted by the Spanish Government, the "Jaime I Award", the General Council of Pharmacy Medal, and other awards granted by scientific organizations, such as the "Marie Junot Award" of the APGI, the "Founders Award", the "Outstanding Service Award" and the "Women in Sciences Award" of the CRS. She was also recently awarded by the AIM-HI Women's Venture Competition program born out of the National Foundation for Cancer Research (NFCR).

She is a fellow of the American Institute for Medical and Biological Engineering (AIMBE) and a Fellow of the Controlled Release Society, a member of the Royal Academy of Pharmacy of Spain, the Royal Academy of Sciences of Galicia, the Royal Academy of Pharmacy in Galicia and a member of the US National Academy of Medicine (NAM).

She was the Vice-rector of Research and Innovation of the USC (2006-10).

# LIST OF PAPERS

The following papers were presented at the 5<sup>th</sup> World Congress on Recent Advances in Nanotechnology (RAN'20)

## Nanotechnology: Cancer and Drug Delivery

**Titles:** Designed for Dentistry, Articaine in NLC Improves Anaesthesia At Inflamed Tissues

**Authors:** Gustavo H. Rodrigues da Silva, Julia B. P. Lemes, Gabriela Geronimo, Iola F. Duarte, Carlos A. Parada, Eneida de Paula

[View Paper](#)

**Titles:** Development of Organoid-on-a-chip Platform for Preclinical Drug Screening

**Authors:** Sandra Carvalho, Diana Pinho, Ana Vila

[View Paper](#)

**Titles:** Fullerene (C60) Evaluation for Photodynamic Therapy

**NDDTE ID 122**

**Authors:** Seyed M. Heidari, Mohadese Golsorkh

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# LIST OF PAPERS

The following papers were presented at the 5<sup>th</sup> World Congress on Recent Advances in Nanotechnology (RAN'20)

## Nanomaterials Applications

**Titles:** Superparamagnetic Iron Oxide Nanoparticles (SPIONs) as Cores for Molecularly Imprinted Polymers (MIP) in Trace Analysis

**Authors:** Maria Guć, Grzegorz Schroeder

[View Paper](#)

**Titles:** CdS, CdSe and PbS Nanostructured Thin Films Synthesized by Chemical Methods for Photovoltaic Applications

**Authors:** Yuri Vorobiev, Francisco Willars-Rodriguez, Fernando Chimal-Moreno, Rafael Ramírez-Bon, Pavel Vorobiev

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**Titles:** Synthesis and Characterization of Bimetallic Ru-Re Catalysts Supported on Oxide Carriers

**Authors:** Szymon Smykała, Katarzyna Adamska, Mirosława Pawlyta

[View Paper](#)

**Titles:** Adsorption Of PET On Concrete Nano-structures: An In-silico Assay

**Authors:** L. Bárcenas, F. Aguilera-Granja, G. Ramírez-García, E. Díaz-Cervantes

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# LIST OF PAPERS

The following papers were presented at the 5<sup>th</sup> World Congress on Recent Advances in Nanotechnology (RAN'20)

## Computational Nanotechnology

**Titles:** Comparative analysis of sensory activity of carbon nanotubes with boundary modification

**Authors:** Natalia Boroznina, Irina Zaporotskova, Sergei Boroznin, Lev Kozhitov, Pavel Zaporotskov

[View Paper](#)

**Titles:** Theoretical Study of Metal Composite on the Monolayer PPAN Basis, Containing Pair Metal Atoms Cu-Co and Cu-Ni

**Authors:** Irina Zaporotskova, Daniil Radchenko, Sergei Boroznin, Natalia Boroznina, Lev Kozhitov, Pavel Zaporotskov

[View Paper](#)

**Titles:** Influence of the Boron Impurities in Carbon Nanotubes on the Atomic and Molecular Hydrogen Sorption Processes

**Authors:** Sergei Boroznin, Irina Zaporotskova, Natalia Boroznina, Lev Kozhitov, Daria Dolgova

[View Paper](#)

**Titles:** Improving Interfacial Shear Strength in Graphene Reinforced Copper Nanocomposites

**Authors:** Shaoyu Zhao, Yingyan Zhang, Jie Yang, Sritawat Kitipornchai

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# SPONSORS

International ASET Inc. would like to thank the following sponsors for their support of RAN'20:



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# JOURNAL SPECIAL ISSUES

**Selected articles from the congress will be published in the following journal after a secondary review process:**

**[IJTAN - International Journal of Theoretical and Applied Nanotechnology](#)**

**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.

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# RAN'21

The 6th World Congress on Recent Advances in Nanotechnology (RAN'2021) will be held on June, 2020 in Lisbon, Portugal.



For inquiries and to obtain further information on the congress, please visit the [website](https://lisbon2021.rancongress.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.

### ***Fairness***

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.

### ***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.

# ETHICS & MALPRACTICE

## 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.

# ETHICS & MALPRACTICE

## ***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 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.

### ***Content and Archiving***

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### ***Copyright and Access***

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### ***Ownership and Management***

This conference-proceedings is managed and operated by the International ASET (International Academy of Science, Engineering, and Technology) and Avestia Publishing (the publishing arm of ASET).

### ***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

The 5<sup>th</sup> World Congress on Recent Advances in Nanotechnology (RAN'20) consist of 2 conferences. You can contact each conference using the information below.



5th International Conference on Nanomaterials,  
Nanodevices, Fabrication and Characterization

Email: [info@icnnfc.com](mailto:info@icnnfc.com) | Website: [www.icnnfc.com](http://www.icnnfc.com)



5<sup>th</sup> International Conference on Nanomedicine, Drug  
Delivery, and Tissue Engineering

Email: [info@nddte.com](mailto:info@nddte.com) | Website: [www.nddte.com](http://www.nddte.com)

For inquiries and to obtain further information on the conferences,  
please visit our [website](#)  
or call us at: +1-613-834-9999

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