To view this email as a webpage, click here.

Newsletter | December 2025

Editor's Note

Welcome to the December 2025 issue of the Nanotechnology Council newsletter. This issue brings you the latest updates and activities in the IEEE-NTC community. We hope you enjoy it and do let us know if there is any topic you'd like to see covered in the future. All future content submissions to the newsletter should be sent to the editors: Yijun Cui and Ke Chen.

Yijun Cui
Nanjing University of Aeronautics and Astronautics
Nanjing, China

Ke Chen
Nanjing University of Aeronautics and Astronautics
Nanjing, China

Contents

PRESIDENT MESSAGE

President's Concluding Message
Greetings from IEEE NTC President Jin-Woo Kim

As I conclude my two-year term as President of the IEEE Nanotechnology Council (NTC), I do so with deep gratitude and pride in what we have accomplished together. Serving this remarkable global community has been both an honor and a privilege. Over the past two years, NTC has experienced meaningful growth driven by shared vision, adaptive leadership, and strong community engagement.

When I assumed the presidency in early 2024, I introduced the "25 Forward" initiative as a roadmap to enhance NTC's visibility, strengthen its foundations, and expand its global impact. Central to this effort was inreach – the belief that our volunteers and participants are the heart of the Council. Guided by this principle, we modernized governance structures, strengthened organizational sustainability, and ensured that NTC participation remains meaningful and rewarding.

We achieved several important milestones. NTC unveiled a new logo and launched a redesigned website, supported by the creation of a Digital Communications Committee to strengthen global engagement. We expanded NTC's international presence with the launch of IEEE Latin American Conference on Nanotechnology (IEEE-LANANO), our first sponsored conference in Latin America, reflecting our commitment to broad global representation. Our publications and conferences were further strengthened through PRAC reviews, strategic planning, and adaptive responses to evolving challenges.

Collaboration remained a cornerstone of our progress. We deepened partnerships across IEEE societies and councils, advanced Division I initiatives, and opened new pathways for interdisciplinary innovation. As a result of these combined efforts, NTC has grown to over 46,000 participants, making it one of the largest IEEE Councils – an achievement that reflects the vitality of our community.

We also strengthened leadership continuity through mentoring, advisory roles, and succession planning, while navigating IEEE's evolving financial framework with discipline and stability. Despite challenges – including budgetary shifts, geopolitical disruptions, and the transition of IEEE-NMDC 2025 to a virtual format – NTC emerged more resilient, agile, and future-ready.

ready.

As I hand over leadership to Dr. Kremena Makasheva, I do so with great confidence. Her vision and expertise will guide NTC into its next chapter as we approach the Council's 25th anniversary – well positioned for sustained growth and global impact.

I extend my heartfelt thanks to our volunteers, committee members, officers, and partners for their dedication and collaborative spirit. While my term as President concludes, my commitment to NTC remains steadfast. With strong leadership and an engaged global community, the future of NTC is brighter than ever!

With deep appreciation and optimism,

Jin-Woo Kim
President, IEEE Nanotechnology Council

BREAKING NEWS

2026 NTC Newly Elevated Fellows

Congratulations to the following outstanding members of NTC community on being elevated to the rank of Fellow of IEEE effective 1 Jan 2026!

Lixin Dong
City University of Hong Kong, Hong Kong
for pioneering in nanorobotics and nanomanipulation and their applications

Han Wang
University of Hong Kong, Hong Kong
for contributions to 2D transistors technology

Weida Hu
Shanghai Institute of Technical Physics, CAS, China
for contributions to integrated neuromorphic optoelectronic devices and artificial micro-nano structure enhanced infrared detectors

IEEE NTC 2026 Seasonal Schools

Each year, the IEEE Nanotechnology Council (NTC) supports several Seasonal Schools on Nanotechnology to foster learning, collaboration, and innovation. These schools provide a focused platform for students, early-career researchers, and professionals to explore cutting-edge topics, engage with leading experts, and connect within the global NTC community.

Start developing your proposals for your NTC Seasonal Schools. Application will open in January. **Check the website for details**:

AWARD MESSAGES

Dear NTC professionals and contributors,

As Chair of the NTC Award Committee, I am contacting you to make you aware and encourage you to apply or nominate a colleague to the many awards that NTC sponsors: six are for individuals, two for the best papers published in the IEEE Transactions on Nanotechnology (T-NANO) and the IEEE Nanotechnology Magazine (INM), one is for the best Chapter, and one for the best Technical Committee. Nominators should utilize the forms associated with each award description and make sure that a completed nomination specifically addresses all requirements, such as contributions, impact, and evidence related to the basis for judgment associated with the award. Other requirements include the participation to NTC-supported conferences as some awards are presented at these events.

The newly designed NTC web site has more details on these awards;

Also do not hesitate to contact me if you need further information: I can be reached by email at F.Lombardi@northeastern.edu

I am here to help and facilitate an application to the above NTC awards.

Best Regards,

Fabrizio Lombardi,
Northeastern University,
Dept of ECE
Boston, MA 02115, USA

DISTINGUISHED LECTURE

The IEEE Nanotechnology Council is pleased to announce the appointments of Distinguished Lecturers for 2026.

- **E. H. Yang**: Ferromagnetism in Substitutionally Doped TMDs: Toward Spintronics and Bioelectronics
- **Giovanni Finocchio**: High performance spintronic devices in radio-frequency technology and computing
- **Jianshi Tang**: Memristor-based Neuromorphic Computing for Accelerating AI and Signal Processing
- **Vinod K. Sangwan**: Emerging Nanomaterials for Bio-Realistic Neuromorphic Computing
- **José Miguel García-Martín***: Nanostructured columnar thin films by magnetron sputtering: From fundamentals to device
- **Deep Jariwala***:
  - III-Nitride Ferroelectrics for Low-Power and Extreme Environment Electronics
  - Nanoscale Excitonic Semiconductors for Strong Light-Matter Interactions
  - Two-Dimensional Semiconductors for Low-Power Logic and Memory Devices
- **Federico Rosei***: Multifunctional materials for emerging solar technologies 2D Conjugated Polymers: Organic Analogues of Graphene
- **Davide Mencarelli***:
  - Advanced modeling and design of RF devices and systems based on low-dimensional materials
  - Development of multi-physic and multi-scale models of electro/opto- mechanical systems forhigh-frequency devices
  - Rigorous numerical simulation of the combine quantum-electromagnetic problem for application to nonlinear device
- **Wenzhuo Wu***: Tellurene electronics and beyond

*Re-appointment for second year.

TECHNICAL ACTIVITIES

IEEE NTC 2026 TC 19 Heterogenous Integration & Chiplets February Webinar

Title: Emerging Technologies in the Era of Automotive Chiplets including Review of Cost Considerations”

Date: 24 February 2026
Time: 10:00 AM CST

Register link

The NTC Heterogenous Integration and Chiplets Technical Committee (TC19) is organizing an online workshop on 24 February 2026 with eminent speakers from the industry. Presenters will add breadth in discussing “Emerging Technologies in the Era of Automotive Chiplets including Review of Cost Considerations.”

Speaker 1 – Vikas Gupta (ASE)

Title: “Chiplets and Advanced Packaging for Automotive: Motivation and Opportunities”

ABSTRACT:

Software-Defined Vehicles (SDVs), enabled by advancements in electrical/electronic (E/E) and software architectures, are poised to play a pivotal role in reshaping the automotive and semiconductor value chains. Automotive E/E architectures have progressed from a decentralized model to more centralized approaches, incorporating zonal controllers and central compute units. This evolution drives silicon consolidation and greater functional integration. Emerging vehicle platforms now combine CPUs, memory, and hardware accelerators, often implemented using advanced semiconductor nodes. However, the transition to these advanced nodes presents cost management challenges. While chiplet-based architectures are gaining traction across sectors such as high-performance computing and consumer electronics, automotive applications pose unique constraints, including stringent reliability, safety, and lifecycle requirements.

This presentation explores the growing motivation behind adopting chiplets and advanced packaging technologies in automotive applications, highlighting the benefits of enhanced product configurability, design flexibility, and reduced time-to-market. The use of chiplets and advanced packaging also presents opportunities to address reliability challenges commonly associated with traditional automotive processor packages. Furthermore, the talk provides an update on two fan-out packaging solutions tailored for automotive use cases: one enabling multi-SoC/chiplet integration, and the other supporting SoC-to-HBM3 integration. Both solutions leverage ASE’s VIPack™ FOCoS (Fan-Out Chip-on-Substrate) Chip-Last technology to meet the stringent demands of automotive environments.

Speaker 2 – Nokibul Islam (STATS ChipPAC)

Title: Low cost chiplet packaging

ABSTRACT:

Chiplets, small IC dies with specialized functions that can be combined to

form complex chips, are an attractive solution for advanced silicon process nodes. However, packaging them at a reasonable cost creates many challenges. Several approaches are widely available, including fine line and space standard substrate, Si interposer, RDL interposer, and embedded bridge die in RDL interposer. An analysis of the various processes and technologies shows that RDL interposer solution offers the best cost-performance tradeoffs.

YOUNG PROFESSIONALS

Call for NTC YP Ambassadors

The IEEE Nanotechnology Council (NTC) Young Professionals (YPs) and the Vice-President for Educational Activities, supported by the ExCom, have established a new program called NTC YPs AMBASSADORS. This program has the objective of inspiring and informing NTC YPs on a variety of topics (e.g., technical, nontechnical) to enhance their interest and engagement in the field of nanoscience and nanotechnology. The NTC YPs ambassadors will deliver talks at various Chapters/Sections "on-demand" and in a virtual modality.

Eligibility & Applications:

The call for nominations is starting from **1 November** with a deadline for **15 January 2025**.

The candidate must:

-be an IEEE member
-NTC participant
-belong to the IEEE YP
-have about 5 years or more experience reflecting professional maturity (e.g, university, professional, volunteering, etc.)

The ambassadors are selected for a term of one year. The appointment starts from **1 January 2026**. All new ambassadors ***are required to give at least two talks during their tenure of one year***.

For the application the following details are needed:

i) a resume or CV (two pg. max.);
ii) the title(s) of the maximum 2 talks;
iii) a brief writeup on the benefits of the talk proposed to the NTC YPs community;
iv) a 5-min short video sample of any proposed talk.

The applications must be sent to matteobrunolodi@ieee.org

Evaluation: a dedicated and specific Subcommittee will manage the nomination and selection process of the NTC YPs AMBASSADORS and provide the results that will be announced both on the NTC Website (https://ieeenano.org/) and on the TryNano webpage (https://trynano.org/it/)."

NTC Young Professionals Update

Five Regional NTC YP LinkedIn pages have been established and are timely updated. The regional coordinators established cooperation with the regional NTC conference organizers in order to support and ensure presence of young professionals.

NTC YP LinkedIn:

- Region 7 (Canada)
- Region 9 (Latin America)
- NTC YP India
- Region 8 (Africa, Europe, Middle East)
- Region 10 (Asia and Pacific)

CONFERENCES

Included in this section:

- **IEEE-NEMS 2026 – Call for Papers**
- **IEEE NANO 2026 – Call for Papers**
- **MARSS 2026**

IEEE-NEMS 2026 – Call for Papers

2026 IEEE 21st International Conference on Nano/Micro Engineered and Molecular Systems will be held on 17-21 April 2026 in Chengdu, China.

IEEE-NEMS is a premier conference series sponsored by the IEEE Nanotechnology Council focusing on the promotion of advanced research areas related to M/NEMS, nanotechnology, and molecular technology. Prior conferences were held in Zhuhai (2025), Kyoto (2024), Jeju (2023), Virtually (2022), Xiamen (2021), Virtually (2020), Bangkok (2019), Singapore (2018), Los Angeles (2017), Matsushima Bay (2016), Xi'an (2015), Hawaii (2014), Suzhou (2013), Kyoto (2012), Kaohsiung (2011), Xiamen (2010), Shenzhen (2009), Hainan Island (2008), Bangkok (2007), and Zhuhai (2006).

Topics including, but not limited to:

- Micro/Nano Electro-Mechanical Systems (M/NEMS)
- Micro/Nano/Molecular Fabrication
- Micro/Nano Robotics
- Micro/Nano/Molecular Physical/Chemical Sensors/Actuators
- Nano Photonics and Micro/Molecular Optical Devices
- Micro/Nano-Composite Materials and Structures
- Micro/Nano-Bio-/Medical Devices and Systems
- Functional Nanomaterials and Synthesis
- Micro/Nano Integrated Devices/Circuits/Systems
- 3D Printing and Bioprinting
- Micro/Nanofluidics

Important Dates

Initial Submission (Full Paper or Extended Abstract): 10 Jan 2026
Notification of Acceptance: 10 Feb 2026
Late-News Submission Deadline: 28 Feb 2026
Early Registration Deadline: 10 Mar 2026
Presentation-Only Submission Deadline: 10 Mar 2026
Final Submission Deadline: 10 Mar 2026

Website URL: https://2026.ieeenano.org/
Date: 17-21 April 2026

Date: 19–21 April 2026

IEEE NANO 2026 – Call for Papers

Since founded in 2001, IEEE-NANO is the flagship conference series of the IEEE Nanotechnology Council (NTC). It promotes advanced research in nanoscience and nanotechnology. Recent conferences were held in Washington DC (USA, 2025), Gijón (Spain, 2024), Jeju Island (Korea, 2023), Palma de Mallorca (Spain, 2022), Montreal (Canada, 2021), Virtual (2020), Macao (China, 2019), Cork (Island, 2018), Pittsburgh (USA, 2017), Sendai (Japan, 2016), Rome (Italy, 2015), and Toronto (Canada, 2014).

The 26th IEEE International Conference on Nanotechnology (IEEE-NANO 2026) will be held from July 5 – 8, 2026, in Nanjing, China. We are looking forward to your visit in Nanjing, China.

Important Dates:

Special Session Proposal Submission: 15 Jan 2026
Special Session Proposal Decisions: 1 Feb 2026
Full Paper Submission: 1 Mar 2026
Full Paper Decisions: 10 Apr 2026
Abstract Only Submission: 10 Apr 2026
Abstract Only Decisions: 1 May 2026

Website URL: https://2026.ieeenano.org/
Date: 5-8 July 2026

Manipulation, Automation and Robotics at Small Scales

The 9th Int. Conference on Manipulation, Automation and Robotics at Small Scales (MARSS) will be held on July 27-31, 2026, at Zhejiang University in Hangzhou, China https://marss-conference.org. General Chairs: Huiquan Wang (CN) and Zhonghe Jin (CN). MARSS is the flagship forum for cross-disciplinary R&D communities related to manipulation, automation, measurement and characterization at micro/nano scales as well as all kinds of small size robots (nm - cm) and their applications. The conference is technically supported by IEEE-NTC and IEEE-RAS.

We cordially invite you to attend and contribute to the conference. MARSS2026 will feature 11 plenary talks and 35-40 technical sessions (oral presentations only). Full papers (5-6 pages) or short papers (1-3 pages) on MARSS-related topics are invited. Presented full papers will be submitted for inclusion into the IEEE Xplore® digital library and contest for several Best Paper Awards. Selected full papers will be recommended to Journal of Micro-Bio Robotics (Springer Nature) for a Special Issue.
You may also consider organizing a Special Session at MARSS2026.

Sergej Fatikow / MARSS, Founding Chair
Heiko Meyer, Yuning Lei / MARSS, Publicity Chairs
Div. Microrobotics & Control Eng, University of Oldenburg, Germany

Important Dates:
Full paper submissions: 15 April 2026 (no extension possible!).
Short paper submission: 10 June 2026

Website URL: https://marss-conference.org
Date: 27-31 July 2026

PUBLICATIONS

IEEE Transactions on Nanotechnology

View the full current issue of IEEE T-NANO.

For additional information, visit the IEEE *Xplore* website.

To find how to submit to T-NANO, click here.

T-NANO, VOLUME 24

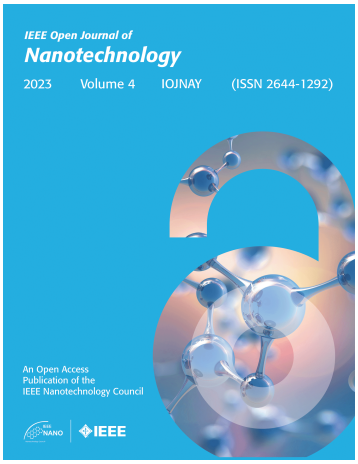
IEEE Open Journal of Nanotechnology

View the full current issue of IEEE OJ-NANO.

For additional information, visit the IEEE *Xplore* website.

To find how to submit to OJ-NANO, click here.

OJ-NANO, VOLUME 6



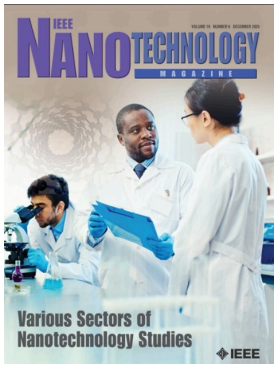
IEEE Nanotechnology Magazine

View the full current issue of IEEE INM.

For additional information, visit the IEEE *Xplore* website.

For information on submitting to INM, click here.

INM, VOLUME 19, NO. 4



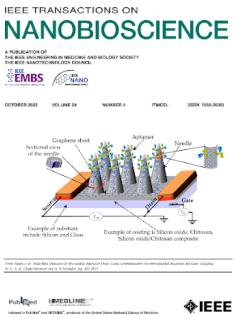
IEEE Transactions on NanoBioscience

View the full current issue of IEEE T-NB.

For additional information, visit the IEEE *Xplore* website.

To find how to submit to T-NB, click here.

T-NB, VOLUME 24, NO. 4



LIST OF NANOTECHNOLOGY COUNCIL OFFICERS (2025)

President

Jin-Woo Kim

Past-President

Fabrizio Lombardi

President-Elect

Kremena Makasheva

Vice President for Conferences

John Yeow

Vice-President for Educational Activities

Luca Pierantoni

Vice-President-elect for Educational Activities

Georgios Sirakoulis

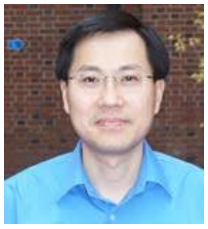
Vice President for Finances

Malgorzata Chrzanowska-Jeske

Vice-President for Publications

Georgios Sirakoulis

Vice President-elect for Publications



Xiaoning Jiang

Vice President for Technical Activities

Weiqiang Liu

Vice President-elect for Technical Activities

Jie Han

Secretary

Edward G. Perkins