

IEEE-NEMS 2024

Award Winners and Finalists

The 19th IEEE International Conference on
Nano/Micro Engineered and Molecular Systems

May 2-5, 2024

Kyoto University of Advanced Science (KUAS)

KYOTO, Japan



IEEE-NEMS 2024 conference awards:

Nomination: Highly rated abstract and submitting full paper (4-6 pages)

- ✓ **CM Ho best paper award in Micro/Nanofluidics** 1 paper
- ✓ **Conference paper award**
 - The best conference paper award : 1 paper
 - The conference paper award : 2 papers
- ✓ **Student paper award**
 - The best student paper award : 1 paper
 - The student paper award : 2 papers
- ✓ **Poster award**
 - The best poster award : 1 poster
 - The poster award : 1 poster

CM Ho best paper award Finalists (5 papers)

- **A Dual-Aptamer Sandwich Assay for Detection of C-Reactive Protein on an Integrated Microfluidic System**
To-Wen Chen, Chih-Hung Wang, Gwo-Bin Lee, National Tsing Hua University, Taiwan
- **Harnessing Nature's Fury: Hyptis Suaveolens-IR775 Encapsulated Biodegradable Liposome for Combinatorial Photothermal Therapy of Lung Cancer**
Sajmina Khatun, Monika Pebam, Anamika Verma, Aravind Kumar Rengan, Indian Institute of Technology Hyderabad, India
- **Cancer Biomarker Detection in a Portable, Automated, Multi- Channel Magnetofluidic Platform**
Alexander Hasnain, Alejandro Stark, Alexander Trick, Ke Ma, Kuangwen Hsieh, Yulan Cheng, Stephen Meltzer, Tza-Huei Wang, Johns Hopkins University, United States
- **A Novel One-Aptamer-One-Antibody Assay for Detection of Alpha Defensins HNP 1-3 in Synovial Fluid for Diagnosis of Periprosthetic Joint Infections**
Gwo-Bin Lee[2], Rishabh Gandotra[2], Hung-Bin Wu[2], Feng-Chih Kuo[1], Mel S Lee[3], [1]Kaohsiung Chang Gung Memorial Hospital, Taiwan; [2]National Tsing Hua University, Taiwan; [3]Paochien Hospital, Taiwan
- **Controlled Synthesis of Branched Gold Nanoparticles by Microfluidic Device for Light-Activated Biomolecular Delivery**
Kavitha Illath[1], Moeto Nagai[3], Tuhin Subhra Santra[1], Srabani Kar[2], [1]Indian Institute of Technology Madras, India; [2]Indian Institutes of Science Education and Research, India; [3]Toyohashi University of Technology, Japan

CM Ho best paper award winners

1 paper

Cancer Biomarker Detection in a Portable, Automated, Multi-Channel Magnetofluidic Platform

*Alexander Hasnain, Alejandro Stark, Alexander Trick, Ke Ma, Kuangwen Hsieh,
Yulan Cheng, Stephen Meltzer, Tza-Huei Wang*

Johns Hopkins University, United States

Conference paper award Finalists (page 1) (11 papers)

- **Selective Micro-Transfer Printing of Microspheres Using Adhesion-Switchable Stamp**
Lizhou Yang, Qinhua Guo, Jingyang Zhang, Yawen Gan, Yunda Wang, The Hong Kong University of Science and Technology (guangzhou), China
- **2–16 GHz Multifrequency X-Cut Lithium Niobate NEMS Resonators on a Single Chip**
Ryan Tetro, Luca Colombo, Matteo Rinaldi, Northeastern University, United States
- **Wafer Scalable Synthesis of MoS₂ Nanostructures for Photosensing Applications**
Sharmila B, Priyanka Dwivedi, Indian Institute of Information Technology, Sri City, India
- **Through Silicon via (TSV)-Embedded Graphene-Silicon Photodetector Array for 3D Stacked CMOS Integration**
Xiaochen Wang, Yongliang Xie, Hao Ning, Feng Tian, Yunfei Xie, Muhammad Abid Anwar, Jiangming Lin, Srikrishna Chanakya Bodepudi, Bin Yu, Yang Xu, Zhejiang University, China
- **LIG-OSS: Integrated Laser-Induced-Graphene Sensor and Open- Source Silicon Chip for an Affordable and Robust Wearable Sensing System with Precise Temperature, Humidity, and Strain Sensing Capability**
Hongyi Wu[2], Anhang Li[2], Gregory Kielian[1], Mehdi Saligane[2], [1]Google LLC Mountain View, United States; [2]University of Michigan, United States
- **Harnessing Nature's Fury: Hyptis Suaveolens-IR775 Encapsulated Biodegradable Liposome for Combinatorial Photothermal Therapy of Lung Cancer**
Sajmina Khatun, Monika Pebam, Anamika Verma, Aravind Kumar Rengan, Indian Institute of Technology Hyderabad, India

Conference paper award Finalists (page 2) (11 papers)

- **Machine-Learning Assisted Dual-Primer High-Resolution Melt for Bacterial and Fungal Infections Detection**
Pei-Wei Lee, Marissa Totten, Amelia Traylor, Sean Zhang, Kuangwen Hsieh, Tza-Huei Wang, Johns Hopkins University, United States
- **Cancer Biomarker Detection in a Portable, Automated, Multi-Channel Magnetofluidic Platform**
Alexander Hasnain, Alejandro Stark, Alexander Trick, Ke Ma, Kuangwen Hsieh, Yulan Cheng, Stephen Meltzer, Tza-Huei Wang, Johns Hopkins University, United States
- **Distinguishing Between dsDNA and DNA with a Single-Base Mismatch Using Solid-State Nanopores**
Xiaojing Hu, Yin Zhang, Southeast University, China
- **A Novel One-Aptamer-One-Antibody Assay for Detection of Alpha Defensins HNP 1-3 in Synovial Fluid for Diagnosis of Periprosthetic Joint Infections**
Gwo-Bin Lee[2], Rishabh Gandotra[2], Hung-Bin Wu[2], Feng-Chih Kuo[1], Mel S Lee[3], [1]Kaohsiung Chang Gung Memorial Hospital, Taiwan; [2]National Tsing Hua University, Taiwan; [3]Paochien Hospital, Taiwan
- **Membrane Protein Synthesis and Reconstitution Into Monodisperse Giant Unilamellar Vesicles Produced by Microfluidics**
Satoshi Nanjo[1], Mamiko Tsugane[1], Tomoaki Matsuura[2], Hiroaki Suzuki[1], [1]Chuo University, Japan; [2]Tokyo Institute of Technology, Japan

Conference paper award winners 2 papers

- **Selective Micro-Transfer Printing of Microspheres Using Adhesion-Switchable Stamp**

Lizhou Yang, Qinhua Guo, Jingyang Zhang, Yawen Gan, Yunda Wang, The Hong Kong University of Science and Technology (guangzhou), China

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*Pei-Wei Lee, Marissa Totten, Amelia Traylor, Sean Zhang, Kuangwen Hsieh, Tza-Huei Wang
Johns Hopkins University, United States*

Conference best paper award winner

1 paper

Cancer Biomarker Detection in a Portable, Automated, Multi-Channel Magnetofluidic Platform

*Alexander Hasnain, Alejandro Stark, Alexander Trick, Ke Ma, Kuangwen Hsieh,
Yulan Cheng, Stephen Meltzer, Tza-Huei Wang
Johns Hopkins University, United States*

Student paper award Finalists (5 papers)

- **Quadrature Error Correction System for Disk Ring Gyroscope Using (100) Single Crystal Silicon**
Junying Yang, Tiantian Wang, Congchen Wang, Jianlin Chen, Qinghua Ren, Yiming Ma, Nan Wang, Shanghai University, China
- **3D Printed Cell and Fiber Guiding Scaffold Mimicking Periodontal Architecture**
Sarin Abraham[1], Pallavi Gupta[1], Kavitha Govarthanan[2], Suresh Rao[1], Tuhin Subhra Santra[1], [1]Indian Institute of Technology Madras, India; [2]Institute for Stem Cell Science and Regenerative Medicine, India
- **Micro-Scale Modular CMOS Readout Electronics for Multi-Modal Sensor Arrays**
Roman Willaredt[2], Daniel De Dorigo[2], Christoph Grandauer[3], Daniel Wendler[2], Dhivya Manharan[1], Stephan Knappmann[1], Helmut Schottmann[1], Alfons Deh' e [1], Matthias Kuhl[2], [1]Hahn-Schickard, Germany; [2]Laboratory for Microelectronics, Albert-Ludwigs-University Freiburg, Germany; [3]Laboratory for Microelectronics, University of Freiburg, Germany
- **A Dual-Aptamer Sandwich Assay for Detection of C-Reactive Protein on an Integrated Microfluidic System**
To-Wen Chen, Chih-Hung Wang, Gwo-Bin Lee, National Tsing Hua University, Taiwan
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Student paper award winners 2 papers

- **Quadrature Error Correction System for Disk Ring Gyroscope Using (100) Single Crystal Silicon**

*Junying Yang, Tiantian Wang, Congchen Wang, Jianlin Chen, Qinghua Ren, Yiming Ma, Nan Wang,
Shanghai University, China*

- **3D Printed Cell and Fiber Guiding Scaffold Mimicking Periodontal Architecture**

*Sarin Abraham[1], Pallavi Gupta[1], Kavitha Govarthanan[2], Suresh Rao[1],
Tuhin Subhra Santra[1]*

*[1]Indian Institute of Technology Madras, India; [2]Institute for Stem Cell Science and
Regenerative Medicine, India*

Student best paper award winner

1 paper

Micro-Scale Modular CMOS Readout Electronics for Multi-Modal Sensor Arrays

Roman Willaredt[2], Daniel De Dorigo[2], Christoph Grandauer[3],
Daniel Wendler[2], Dhivya Manharan[1], Stephan Knappmann[1],
Helmut Schottmann[1], Alfons Deh´e [1], Matthias Kuhl[2]

[1]Hahn-Schickard, Germany; [2]Laboratory for Microelectronics, Albert-Ludwigs-University
Freiburg, Germany; [3]Laboratory for Microelectronics, University of Freiburg, Germany

Poster award Finalists (5 papers)

- **Metallic Microneedle Electrode Array (m-MNEA) as a Novel Intracortical Neural Interface**
Junshi Li[2], Zhongyan Wang[2], Xiaoyi Shi[2], Dong Huang[1], Yuqing Zheng[2], [1]Acimicro Medical Technology, Co., Ltd., China; [2]Peking University, China
- **Design and Manufacture of MEMS Deformable Mirror Based on Piezoelectric Actuator with 61 Electrodes**
Xiang Guo[2], Yuanlin Xia[2], Cao Xia[2], Isaku Kanno[1], Zhuqing Wang[2], [1]Kobe University, Japan; [2]Sichuan University, China
- **An Ultra-High Performance Bio-Triboelectric Nanogenerator via Interfacial Polarization**
Wang[2], Pengfan Wu[2], Endian Cui[2], Zhenfeng Ji[2], Jizhen Li[2], Xiaojing Mu[1], [1]Chongqing University, China; [2]Key Laboratory of Optoelectronic Technology & Systems Ministry of Education, International R & D, China
- **Porous Graphene-Based Flexible On-Chip Microsupercapacitors Enabled by Chitosan Oligosaccharide Laser Lithograph**
Qian-Ming Huang[5], Huiru Yang[3], Shaogang Wang[4], Guoqi Zhang[1], Paddy French[1], Huaiyu Ye[2], [1]Delft University of Technology, Netherlands; [2]South University of Science and Technology of China, China; [3]Southern University of Science and Technology, China; [4]Southern University of Science and Technology, Delft University of Technology, China; [5]Southern University of Science and Technology, Harbin Institute of Technology, China
- **NEMS Force Sensors Based on Suspended Graphene Membranes**
Xiaoya Liang, Qi Zhang, Xing Pang, Yulong Zhao, Hongzhong Liu, Xi'an Jiaotong University, China

Poster award winner 1 poster

NEMS Force Sensors Based on Suspended Graphene Membranes

*Xiaoya Liang, Qi Zhang, Xing Pang, Yulong Zhao, Hongzhong Liu
Xi'an Jiaotong University, China*

Best poster award winner 1 poster

Metallic Microneedle Electrode Array (m-MNEA) as a Novel Intracortical Neural Interface

*Junshi Li[2], Zhongyan Wang[2], Xiaoyi Shi[2], Dong Huang[1], Yuqing Zheng[2]
[1]Acimicro Medical Technology, Co., Ltd., China; [2]Peking University, China*



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Thank you!!



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