

AIS 2025 Abridged Program

	DAY 1	DAY 2	DAY 3	DAY 4	
29 July 2025 (Tuesday)	30 July 2025 (Wednesday)	31 July 2025 (Thursday)	1 August 2025 (Friday)	2 August 2025 (Saturday)	3 August 2025 (Sunday)
	Registration	Plenary Speech 3	Symposium	Symposium	
	Opening Ceremony	Plenary Speech 4			
	Plenary Speech 1				
	Plenary Speech 2				
		Coffee Break			
	Symposium	Symposium	Symposium	Symposium	Free Activities
		Lunch Break			
Registration	Symposium	Symposium	Symposium	Symposium	
	Coffee break	Poster Session &		Coffee break	
	Symposium	Coffee break	Social Activity	Award Ceremony	
		Banquet Dinner			

Symposium	DAY 1 30 July	DAY 2 31 July	DAY 3 1 August	DAY 4 2 August
S1. Lab-on-a-chip (LoC) and MicroTAS		√	√	
S2. Biosensors and Biomedical Devices	√	√		
S3. In-body IoT Sensing Technology, Electroceuticals and Neural Interfaces		√	√	
S4. Nanophotonics and Metasurface	√	√		
S5. Acoustic, RF, THz Metamaterials and AI-Enabled Metamaterials				√
S6. Neuromorphic Computing, In-Memory Computing and Applications				
S7. Photonics Integrated Circuits (PIC) and Novel Materials	√			
S8. Enabling Technology for Photonic Neural Networks (PNN) and Applications				
S9. In-Sensor Computing and Enabling Technology for Edge Computing				
S10. MEMS/NEMS Sensors	√			
S11. Semiconductor Sensors, Photodetectors and CMOS MEMS		√		
S12. Piezoelectric MEMS and Resonators – FBAR, SAW, pMUT				√
S13. Piezoelectric Transducers and Energy Harvesters			√	
S14. Ferroelectric / Perovskite / 2D Materials Thin Film and Applications				√
S15. Gas Sensors and Chemosensors				√
S16. Triboelectric Nanogenerators and Self-powered Sensors	√	√		
S17. Energy Harvesting Technology and Applications				√
S18. Flexible, Stretchable and Wearable Sensors			√	√
S19. Wearable AI Sensors			√	
S20. AI-enhanced Tactile Sensors and e-Skin			√	
S21. Haptic Technology and Applications		√		
S22. Advanced Sensors for Robots and Autonomous Systems			√	
S23. Intelligent Sensors and AI-Enhanced Humanoids	√			
S24. Enabling Technology for Digital Twin, Metaverse, and Smart Sensing Systems		√		
S25. AIoT Technology and Applications		√		
S26. Sensors for Applications in Agriculture, Aquaculture, Food Technology (A2FT) and Harsh Environment				√
S27. Industry Forum and Commercialization of Sensors and Transducers				

AIS 2025 Detailed Program

Alhambra 1

	DAY 1 30 July 2025 (Wednesday)	DAY 2 31 July 2025 (Thursday)	DAY 3 1 August 2025 (Friday)	DAY 4 2 August 2025 (Saturday)
8:30-10:00	Registration Opening Ceremony Plenary Speech 1 Plenary Speech 2	Plenary Speech 3 Plenary Speech 4	SYM 1	SYM 12
10:00-10:30	Coffee Break			
10:30-12:00	SYM 2	SYM 1	SYM 1	SYM 12
12:00-13:30	Lunch Break			
13:30-15:30	SYM 2	SYM 2	SYM 1	SYM 5
15:30-16:00	Coffee break			
16:00-18:30	SYM 2	/	/	Award Ceremony

Alhambra 2

	DAY 1 30 July 2025 (Wednesday)	DAY 2 31 July 2025 (Thursday)	DAY 3 1 August 2025 (Friday)	DAY 4 2 August 2025 (Saturday)
8:30-10:00	/	/	SYM 13, 14	SYM 17
10:00-10:30	Coffee Break			
10:30-12:00	SYM 4	SYM 24	SYM 13, 14	SYM 17
12:00-13:30	Lunch Break			
13:30-15:30	SYM 4	SYM 4	SYM 13, 14	SYM 17
15:30-16:00	Coffee break			
16:00-18:30	SYM 4	/	/	/

Alhambra 3

	DAY 1 30 July 2025 (Wednesday)	DAY 2 31 July 2025 (Thursday)	DAY 3 1 August 2025 (Friday)	DAY 4 2 August 2025 (Saturday)
8:30-10:00	/	/	SYM 22	SYM 15
10:00-10:30	Coffee Break			
10:30-12:00	SYM 16	SYM 16	/	SYM 15
12:00-13:30	Lunch Break			
13:30-15:30	SYM 16	SYM 21	SYM 19	SYM 15
15:30-16:00	Coffee break			
16:00-18:30	SYM 16	/	/	/

Alhambra 4

	DAY 1 30 July 2025 (Wednesday)	DAY 2 31 July 2025 (Thursday)	DAY 3 1 August 2025 (Friday)	DAY 4 2 August 2025 (Saturday)
8:30-10:00	/	/	SYM 20	SYM 26
10:00-10:30		Coffee Break		
10:30-12:00	SYM 6, 7, 8, 9	SYM 3	SYM 20	SYM 26
12:00-13:30		Lunch Break		
13:30-15:30	SYM 6, 7, 8, 9	SYM 3	SYM 3	SYM 26, 27
15:30-16:00		Coffee break		
16:00-18:30	SYM 6, 7, 8, 9	/	/	/

Al Andalus 1

	DAY 1 30 July 2025 (Wednesday)	DAY 2 31 July 2025 (Thursday)	DAY 3 1 August 2025 (Friday)	DAY 4 2 August 2025 (Saturday)
8:30-10:00	/	/	SYM 18	SYM 18
10:00-10:30		Coffee Break		
10:30-12:00	SYM 10	SYM 25	SYM 18	SYM 18
12:00-13:30		Lunch Break		
13:30-15:30	SYM 10	SYM 11	SYM 18	SYM 18
15:30-16:00		Coffee break		
16:00-18:30	SYM 23	/	/	/

Opening Ceremony and Plenary Speech

Day 1 (30 July 2025, Wednesday)

Alhambra 1

Chaired By: Prof. Chengkuo Lee

8:30-8:45 **Opening Ceremony**

8:45-9:25 Plenary Speech 1
Optical Nanomaterials as Frequency Converters for Imaging and Sensing
Xiaogang Liu
(National University of Singapore)

9:25-10:05 Plenary Speech 2
Intelligent Soft Electronics for Healthcare Monitoring and VR
Xinge Yu
(City University of Hong Kong)

Day 2 (31 July 2025, Thursday)

Alhambra 1

Chaired By: Prof. Chengkuo Lee

8:30-9:10 Plenary Speech 3
Triboelectric energy harvesting for self-sustained healthcare technologies
Sang-Woo Kim
(Yonsei University)

9:15-9:55 Plenary Speech 4
AI Empowered Wearable Ultrasound Technology
Sheng Xu
(University of California San Diego)

S1. Lab-On-A-Chip (Loc) and Microtas

Day 2 (31 July 2025, Thursday)

Alhambra 1

Chaired By: Prof. Kai Chen

10:30-10:50	Invited Speaker	Yong Wang	Flexible and multi-mode acoustofluidics enabled by thin-film acoustic waves
10:50-11:10	Invited Speaker	Yan Xu	Pioneering nanofluidics for next-generation chemical and biological sensing
11:10-11:30	Invited Speaker	Hyoungsoo Kim	Improving lipid vesicle stability via controlled solvent evaporation in microfluidic double emulsions
11:30-11:45	Oral Presenter	Yuya Ishii	Extracellular potential analysis of neuromuscular system using a microelectrode array
11:45-12:00	Oral Presenter	Chaoshan Zhao	A multifunctional microfluidic chip based on single nanoparticle scattering for psa detection

Day 3 (1 August 2025, Friday)

Alhambra 1

Chaired By: Prof. Hiroaki Onoe

8:30-9:00	Keynote Speaker	Chia-Hung Chen	Rare Immune Effector Cell Isolation for Precision Immunotherapy via Microfluidic LISA
9:00-9:20	Invited Speaker	Daisuke Yoshino	Design of an organoid chip that mimics the structure of human placenta
9:20-9:40	Invited Speaker	Moeto Nagai	Programmable Optical Toolbox for Single-Cell Manipulation: Enabling Spatial, Temporal, and Functional Versatility
9:40-10:00	Invited Speaker	Yong Lin Kong	Addressing unmet clinical needs with additive manufacturing of bioelectronics
10:00-10:15	Oral Presenter	Daiki Miyashita	Measurement of extracellular potentials using electrode anchors for skeletal muscle tissue

S1. Lab-On-A-Chip (Loc) and Microtas

Day 3 (1 August 2025, Friday)

Alhambra 1

Chaired By: Prof. Chia-Hung Chen

10:30-10:50	Invited Speaker	Kenichi Funamoto	investigation on aerokinesis and aerotaxis of human breast cancer cells by using microfluidic devices
10:50-11:10	Invited Speaker	Yoshikazu Hirai	Microfluidics-guided assembly of fluorescent nanodiamonds for high-sensitivity thermometry
11:10-11:30	Invited Speaker	Yuya Morimoto	Biohybrid system integrating cultured tissues and devices for evaluation of physiological function
11:30-11:50	Invited Speaker	Kento Yamagishi	On-skin bioelectronic systems with liquid metal microchannels for electrophysiological signal monitoring
11:50-12:05	Oral Presenter	Mami Akaike	Microfluidic sensor for direct measurement of micro-pressures in micro-tissues in vivo
12:05-12:20	Oral Presenter	Partha Pratim Sarkar	High-throughput and efficient intracellular delivery via parallel-periodic mechanoporation with viscoelastic fluids

Chaired By: Prof. Michinao Hashimoto

13:30-14:00	Keynote Speaker	Hiroaki Onoe	in vitro tube-shaped intestinal model with crypt-like inner surface for bacterial co-culture
14:00-14:20	Invited Speaker	Chenjie Xu	Development of cryomicroneedles for the transdermal delivery of biologics
14:20-14:40	Invited Speaker	Ye Ai	Acoustic Microfluidics for Biomedical Applications
14:40-14:55	Oral Presenter	Haixia Zhao	High-Throughput Sers-Droplet System for Label-Free, Real-Time Microbial Metabolite Profiling
14:55-15:10	Oral Presenter	Yuanhao Xie	Machine learning-enabled analysis of reaction processes in microdroplet reactors

S2. Biosensors and Biomedical Devices

Day 1 (30 July 2025, Wednesday)

Alhambra 1

Chaired By: Prof. Tamiya Eiichi

10:30-11:00	Keynote Speaker	Jian Chen	Single-cell detection and microsensors
11:00-11:20	Invited Speaker	Wataru Iwasaki	Flow control in microfluidic paper-based analytical devices with valve using thermoresponsive polymer
11:20-11:40	Invited Speaker	Piyasak Chaumpluk	Utilization of plant microstructure as a straightforward lab -on-a-chip for rabies virus detection
11:40-11:55	Oral Presenter	Zhaojie Xu	Dual-modal ptnps/pedot-rgo microelectrode arrays reveals synergistic encoding of social-related neurons and dopamine

Chaired By: Prof. Tamiya Eiichi

13:30-13:50	Invited Speaker	David Tsai	Cmos implants for at-scale brain machine interfaces
13:50-14:10	Invited Speaker	Luming Zhao	Enhancing sensitivity of schottky contact biosensor by modulating interface property
14:10-14:30	Invited Speaker	Hongcheng Xu	A fully-integrated stretchable device platform for swallowing disorder
14:30-14:50	Invited Speaker	Jingbin Zeng	Multi-modal and multi-channel sensing platform for rapid, multiplexed pathogen detection
14:50-15:05	Oral Presenter	Jinping Luo	Label-free electrochemical aptasensor for sensitive detection of estradiol
15:05-15:20	Oral Presenter	Xinyi Liang	Multifunctional trimer nanoparticles synthesized based on lattice mismatch for multi-mode identification of multiple bacteria
15:20-15:35	Oral Presenter	Xin Wang	Revolutionizing point-of-care diagnostics: a daylight-driven zero-background phosphorescent lateral flow assay enabled by solid silica-encapsulated carbon dots

S2. Biosensors and Biomedical Devices

Day 1 (30 July 2025, Wednesday)

Alhambra 1

Chaired By: Prof. Arakawa Takahiro

16:00-16:30	Keynote Speaker	Chang-Po Chao	Predicting blood pressures for pregnant women by ppg and personalized deep learning
16:30-16:50	Invited Speaker	Nur Syakimah Ismail	Development of electrochemiluminescence-based biosensor using nitrogen-doped carbon dots for bisphenol a detection
16:50-17:10	Invited Speaker	Monica Florescu	Enhancing the sensitivity, selectivity, and sustainability of nanotechnology-driven biosensors
17:10-17:25	Oral Presenter	Guohao Xi	Conical nanopores for enhanced sensing applications engineered via surface modification
17:25-17:40	Oral Presenter	Qingyu Xu	A fluorescent probe for in situ imaging of hydrogen peroxide and sulfur dioxide in biological oxidative stress models
17:40-17:55	Oral Presenter	Nuha Alekhmimi	Mmp-9 and il-6 biomarkers are detected using a biosensor based on au-ides for the quick diagnosis of sepsis

S2. Biosensors and Biomedical Devices

Day 2 (31 July 2025, Thursday)

Alhambra 1

Chaired By: Prof. Arakawa Takahiro

13:30-14:00	Keynote Speaker	Tamiya Eiichi	Electrochemiluminescent Biosensors Using Printed Electrodes and Mobile Diagnostic Devices and Their Biomedical Applications
14:00-14:30	Keynote Speaker	Zhiwei Huang	Stimulated raman scattering tomography for label-free dynamic and functional imaging of live cells and tissue
14:30-14:50	Invited Speaker	Kenta litani	Enzyme-based fluorometry for gas-imaging applications
14:50-15:10	Invited Speaker	Hsiang-chieh Lee	High speed optical tomographic imaging for biomedical applications based on MEMS technology
15:10-15:25	Oral Presenter	Juntao Liu	Automatic localization of seizure onset zone using directed transfer function on seeg
15:25-15:40	Oral Presenter	Arifah Syahirah	Optical Characterization of Lignocaine-impregnated Maltose-based Dissolvable Microneedles

S3. in-Body IoT Sensing Technology, Electroceuticals and Neural interfaces

Day 2 (31 July 2025, Thursday)

Alhambra 4

Chaired By: Prof. Sanghoon Lee

10:30-10:50	Invited Speaker	Yiyuan Yang	Wireless implantable optogenetics: revolutionizing neuroscience behavior studies and treatment of neuro-disorders
10:50-11:10	Invited Speaker	Donghee Son	Self-healing and stretchable bioelectronic devices for stable neuroprosthesis
11:10-11:30	Invited Speaker	Hanmin Peng	Controlled drug release method combined with ultrasonic sensing and therapy
11:30-11:45	Oral Presenter	Shiya Lv	Multimodal biofeedback-guided closed-loop electrical stimulation for cognitive rehabilitation in alzheimer's disease
11:45-12:00	Oral Presenter	Qianli Jia	Tracking of dopamine dynamics and cellular-level electrophysiological activity during different sleep stages

Chaired By: Prof. Yiyuan Yang

13:30-14:00	Keynote Speaker	Sanghoon Lee	Advanced neuromuscular interface for application in bionic limbs
14:00-14:20	Invited Speaker	Bowen Ji	Minimally invasive implantable flexible brain-computer interface sensors
14:20-14:40	Invited Speaker	Seongjun Park	Next-generation biomedical and neural interfaces using multifunctional thermally drawn fibers with soft materials
14:40-15:00	Invited Speaker	Sukho Song	Minimally invasive soft bioelectronic interfaces enabled by soft robotic technologies
15:00-15:15	Oral Presenter	Jaeu Park	Peripheral nerve coil interface for enhancement of axial direction induced magnetic field gradient
15:15-15:30	Oral Presenter	Yu Wang	Chronic flexible probe reveals epileptic spatial coding deficits
15:30-15:45	Oral Presenter	Jong-Hwan Kim	A robust ai gesture classification system for unexpected situations in smart manufacturing using decision transformer

S3. in-Body lot Sensing Technology, Electroceuticals and Neural interfaces

Day 3 (1 August 2025, Friday)

Alhambra 4

Chaired By: Prof. Yiyuan Yang

13:30-14:00	Keynote Speaker	Yilin Song	Advanced Electro-Chemical Neural interfaces for Brain Health and Cognition
14:00-14:20	Invited Speaker	Joonsoo Jeong	Enhancing microelectronic neural interfaces by versatile 3d structuring, multi-modality, and substrate-electrode materials
14:20-14:35	Oral Presenter	Mixia Wang	An intelligent precision brain function localization system for non-human primates based on microelectrode array
14:35-14:50	Oral Presenter	Jian Miao	High-Stability Microelectrode Arrays for Precise Neural Electrophysiological Monitoring During Sleep-Wake Cycle

S4. Nanophotonics and Metasurface

Day 1 (30 July 2025, Wednesday)

Alhambra 2

Chaired By: Prof. Jing Hua Teng

10:30-11:00	Keynote Speaker	Guangya Zhou	Single-pixel imaging for advanced spectroscopy and lidar sensor applications
11:00-11:20	Invited Speaker	Qingfeng Yan	Micro phase retarder based on bottom-up grown quasi-1d fibrous red phosphorus flake
11:20-11:40	Invited Speaker	Yanjun Liu	Fabrication and applications of ultrathin suspended chiral metasurfaces

Chaired By: Prof. Guangya Zhou

13:30-13:50	Invited Speaker	Ting Mei	Light-controlled antimony sulfide phase change for reconfigurable photonic devices
13:50-14:10	Invited Speaker	Haiyang Zou	Carrier transport modulation via surface and interfacial engineering
14:10-14:30	Invited Speaker	Kai Chen	Hybrid plasmonic antenna arrays for the detection of volatile organic compounds
14:30-14:45	Oral Presenter	Hao Dai	Chalcogenide visible metasurfaces: a new platform for high-performance optical devices
14:45-15:00	Oral Presenter	Xinyuan Hu	Experimental realization of convolution processing in photonic synthetic dimensions
15:00-15:15	Oral Presenter	Dongxiao Li	Mid-infrared metasurface with grating-enhanced plasmon resonance for spectral imaging

S4. Nanophotonics and Metasurface

Day 1 (30 July 2025, Wednesday)

Alhambra 2

Chaired By: Prof. Ting Mei

16:00-16:30	Keynote Speaker	Jing Hua Teng	Tunable optics using phase change and van der waals materials for sensing and imaging
16:30-17:00	Invited Speaker	Bingsheng Li	MOCVD Growth of β -Ga ₂ O ₃ Based Heterojunctions for Solar Blind Deep UV Photodetector
17:00-17:20	Invited Speaker	Hong Liu	Printable photonic materials

S4. Nanophotonics and Metasurface

Day 2 (31 July 2025, Thursday)

Alhambra 2

Chaired By: Prof. Hong Liu and Prof. Yanjun Liu

13:30–13:50	Invited Speaker	Yungui Ma	Precision beam steering and optical metrology enabled by micro-meta-lens array
13:50–14:10	Invited Speaker	Bing Wang	Light control with synthetic temporal presenter interfaces
14:10–14:30	Invited Speaker	Qiong He	Light manipulation via near-field coupling control in plasmonic metasurface
14:30–14:45	Oral Presenter	Cheng Xu	Cmos enabled mid-infrared chiroptic platform for polarization-wavelength multiplexed imaging
14:45–15:00	Oral Presenter	Chenyu Liu	Chaos-based communication in synthetic temporal presenter lattices
15:00–15:15	Oral Presenter	Yu Kee Ooi	Nanosphere lithography of iii-nitride nanowires

S5. Acoustic, Rf, Thz Metamaterials and AI-Enabled Metamaterials

Day 4 (2 August 2025, Saturday)

Alhambra 1

Chaired By: Prof. Nan Wang

13:30-14:00	Keynote Speaker	Sang-Seok Lee	MEMS device fabrication based on printing technology
14:00-14:30	Keynote Speaker	Yao Zhu	Accelerating PiezoMEMS innovation and Commercialisation
14:30-14:50	Invited Speaker	Linda Shao	Multi-channel metasurface for full-polarization modulation of electromagnetic wavefronts
14:50-15:10	Invited Speaker	Qian Li	Epsilon-near-zero photonics: infinite potentials
15:10-15:30	Invited Speaker	Hongyan Fu	Metamaterial-enabled integrated photonic devices for advanced spectral-scanning lidar systems

S6, 7, 8, 9

Day 1 (30 July 2025, Wednesday)

Alhambra 4

Chaired By: Prof. Aaron Danner

10:30-11:00	Keynote Speaker	Kah Wee Ang	Scalable 2d-cmos heterointegration for energy-efficient compute-in-memory ai hardware
11:00-11:20	Invited Speaker	Zhengjin Weng	High-performance memristors based on two-dimensional transition metal phosphorus trichalcogenides for neuromorphic computing
11:20-11:40	Invited Speaker	Yiming Ma	Denosing-autoencoder-facilitated MEMS computational spectrometer with high performance
11:40-11:55	Oral Presenter	Zian Xiao	Artificial intelligence-integrated Near-infrared Photonic Multi-Modality All-optical Edge Computing Platform for Spectroscopic Sensing

Chaired By: Prof. Kah Wee Ang

13:30-14:00	Keynote Speaker	Aaron Danner	Chip-based photonics in barium titanate
14:00-14:20	Invited Speaker	Xingyan Zhao	integrated photonic devices on thin-film alscn platform
14:20-14:40	Invited Speaker	Akihiko Kasukawa	High power, high efficiency gainasp/inp single mode lasers
14:40-15:00	Invited Speaker	Binbin Wang	All-solid-state beam steering based on the electro-optical effect of thin-film lithium niobate
15:00-15:15	Oral Presenter	Yu-Hsuan Chiang	S-fddft: a few-shot learning framework for real-time motion detection using flexible sensors on edge ai devices
15:15-15:30	Oral Presenter	Yangyang Zhuge	Photonic Bayesian neural network for robust and uncertainty-aware computing

S6, 7, 8, 9

Day 1 (30 July 2025, Wednesday)

Alhambra 4

Chaired By: Prof. Yiming Ma

16:00-16:30	Keynote Speaker	Vittorio Passaro	High-performance optical sensing by non-hermitian photonics
16:30-16:50	Invited Speaker	Sanghoon Chae	Novel 2d materials integrated sin waveguides for chip-based photonic processing
16:50-17:10	Invited Speaker	Xudong Zou	Micro-nano mechanical resonant sensors with in-sensor neuromorphic computing capability
17:10-17:25	Oral Presenter	Koshi Fujimoto	Randomized 2-Dimensional LSPR Gas Sensor using Fluorescent-dyes - Au/Ag NPs coupling
17:25-17:40	Oral Presenter	Yao Wang	Quick and High-Sensitive Gas Detection Using LSPR-SERS Dual-Mode Sensor

S10. MEMS/NEMS Sensors

Day 1 (30 July 2025, Wednesday)

Al andalus 1

Chaired By: Prof. Jian Zhou and Prof. Chun-Wei Tsai

10:30-11:00	Keynote Speaker	Jong Baeg Kim	Transferred carbon nanotubes for sensors and actuators
11:00-11:20	Invited Speaker	Jingui Qian	Acoustofluidic particle localization on piezoelectric resonators for liquid-phase mass sensing
11:20-11:40	Invited Speaker	Jian Zhou	High-frequency surface acoustic wave sensors and their applications
11:40-11:55	Oral Presenter	Wei Guo	Quantum magnetometry based on ensemble nv-centers in integrated MEMS
11:55-12:10	Oral Presenter	Daojiang Yu	Uniform Metal-assisted Chemical Etching for High-Aspect-Ratio Microstructures Fabrication with Low Cost

Chaired By: Prof. Jin Xie

13:30-14:00	Keynote Speaker	Qing-An Huang	Parity-time symmetry for silicon micromechanical resonators
14:00-14:20	Invited Speaker	Mingzhi Yu	Research on MEMS alkali metal atomic vapor cell and miniature atomic magnetometer
14:20-14:40	Invited Speaker	Hong Zhou	Electrically reconfigurable photonic quasi-bound states in the continuum (bic) platform via MEMS actuation
14:40-15:00	Invited Speaker	Zhaojun Liu	Wide-temperature-range flexible thin-film temperature sensor
15:00-15:20	Invited Speaker	Qian Zhang	Flexible sensors and soft robotics

S11. Semiconductor Sensors, Photodetectors and CMOS MEMS

Day 2 (31 July 2025, Thursday)

Al andalus 1

Chaired By: Prof. Swee Tiam Tan and Prof. Po-Liang Liu

13:30-14:00	Keynote Speaker	Qijie Wang	Mid-infrared detection and spectroscopy with 2d materials
14:00-14:20	Invited Speaker	Wanfeng Xie	Tailoring mxene thickness and functionalization for enhanced room-temperature trace no2 sensing
14:20-14:40	Invited Speaker	Jicong Zhao	Van der waals mid-wave infrared photodetector linear array
14:40-15:00	Invited Speaker	Wei-Sea Chang	induced sensing via ferroelectric and piezoelectric
15:00-15:20	Invited Speaker	Azrul Azlan Hamzah	Ultrasonic Transducer for Flow Rate, Occlusion and Bubble Detection in Portable Peritoneal Dialysis System
15:20-15:40	Invited Speaker	Chun-Wei Tsai	Electrostatic MEMS-Driven Silicon Photonics Switch with Zero Static Power Consumption
15:40-15:55	Oral Presenter	Saravanan Adhimoorthy	SnS2 nanosheets-Niobium diselenide@C60 hybrid materials-based self-power broadband photodetectors for advanced neuromorphic AI
15:55-16:10	Oral Presenter	Muhammad Ahsan Iqbal	Redefining Limits: Advanced Organic infrared Photodetectors for Next-Gen Optoelectronics

S12. Piezoelectric MEMS and Resonators – FBAR, SAW, pMUT

Day 4 (2 August 2025, Saturday)

Alhambra 1

Chaired By: Prof. Yao Zhu

8:30-8:50	Invited Speaker	Zhiqiang Mu	Polarity-inverted aluminum scandium nitride resonators and ferroelectric modulations
8:50-9:10	Invited Speaker	Yansong Yang	MEMS transducers empower ultrasonic and rf applications
9:10-9:30	Invited Speaker	Zhiran Yi	Piezoelectric MEMS cooler
9:30-9:50	Invited Speaker	Qinghua Ren	Strain engineering for regulating the behavior of nitrogen vacancies in Al _{1-x} Sc _x N film

Chaired By: Prof. Aron Woldegiorgis and Prof. Siddhartha Ghosh

10:30-11:00	Keynote Speaker	Nan Wang	A Hybrid Design Method of Lamb Wave Mode Filter Based on Machine Learning and COM Model
11:00-11:30	Keynote Speaker	Siddhartha Ghosh	Design and Fabrication of Phononic integrated Circuits in Scandium Aluminum Nitride
11:30-11:50	Invited Speaker	Daniel Chen	Ai-enhanced quantification of abnormally oriented grains in scAlN thin films for in-line process monitoring
11:50-12:10	Invited Speaker	Qilin Hua	Submersible soft robotics with ultrasonic echolocation capabilities
12:10-12:25	Oral Presenter	Hong Zhang	High-Accuracy Simulation Model for Temperature-Frequency Characteristics of Single-Port SAW Resonators Based on Asymptotic Waveform Evaluation

S13. Piezoelectric Transducers and Energy Harvesters

S14. Ferroelectric / Perovskite / 2D Materials Thin Film and Applications

Day 3 (1 August 2025, Friday)

Alhambra2

Chaired By: Prof. Huicong Liu

8:30-9:00	Keynote Speaker	Junwen Zhong	Flexible dual-directional electromechanical transducers for human-machine interactive applications
9:00-9:20	Invited Speaker	Pengcheng Jiao	Ai-informed mechanical piezo-metamaterials for self-powered sensing
9:20-9:35	Oral Presenter	Hangrui Cui	An intelligent Cube-Designed Piezoelectric Node (iCUPE) with Simultaneous Sensing and Energy Harvesting Capabilities
9:35-9:50	Oral Presenter	Fong-Zhi Chen	NCIR's WS2 2D Material R&D Collaboration and Its Application in Gas Sensors

Chaired By: Prof. Ying-Hao Chu and Prof. Wee Chen Gan

10:30-11:00	Keynote Speaker	Huicong Liu	MEMS energy harvesting and sensing techniques for health monitoring and fault diagnosis
11:00-11:20	Invited Speaker	Tao Wu	Aln/alscn piezoelectric thin film transducers
11:20-11:40	Invited Speaker	Jia Lu	Electret-based self-powered flexible vibration sensor with high sensitivity and durability
11:40-12:00	Invited Speaker	Shimpei Ono	The advanced functionalities of ions

S13. Piezoelectric Transducers and Energy Harvesters

S14. Ferroelectric / Perovskite / 2D Materials Thin Film and Applications

Day 3 (1 August 2025, Friday)

Chaired By: Prof. Junwen Zhong

13:30-14:00	Keynote Speaker	Ying-Hao Chu	Flexible high entropy nonlinear dielectrics with superior performance
14:00-14:20	Invited Speaker	Sagnik Ghosh	Scaln-based piezoelectric micromachined ultrasound transducers as a multipurpose lead-free solution
14:20-14:40	Invited Speaker	Takashi Nakajima	Vibration energy harvesting for sustainable iot: advances in piezoelectric polymer materials

S15. Gas Sensors and Chemosensors

Day 4 (2 August 2025, Saturday)

Alhambra3

Chaired By: Prof. Inkyu Park

8:30-9:00	Keynote Speaker	J. Andrew Yeh	Predicting liver function from breath VOCs via machine learning with support for ISFET sensor integration
9:00-9:30	Keynote Speaker	Kun-Lin Yang	Applications of polymer network-liquid crystals (PNLC) as chemical and gas sensors
9:30-9:50	Invited Speaker	Yanbai Shen	High response and selectivity hydrogen sensors based on sandwich-structured MSN/GO/SnO ₂ composites
9:50-10:10	Invited Speaker	Arakawa Takahiro	Non-invasive human volatiles detection via a wearable biochemical gas sensor

Chaired By: Prof. Kun-Lin Yang

10:30-11:00	Keynote Speaker	Xiaoqing Mu	Applications of Surface-Enhanced Infrared Absorption Spectroscopy in Molecular Sensing
11:00-11:30	Keynote Speaker	Sang Sub Kim	Surface functionalization of metal oxide semiconductors for enhanced chemiresistive gas sensing
11:30-11:50	Invited Speaker	Sikai Zhao	SnO ₂ functionalized MoS ₂ nanostructures for high-performance NH ₃ sensing
11:50-12:05	Oral Presenter	Zhao Rao	A high-sensitivity gas sensor for simultaneous detection of methane and ethane in urban gas networks

S15. Gas Sensors and Chemosensors

Day 4 (2 August 2025, Saturday)

Alhambra3

Chaired By: Prof. Sikai Zhao

14:00-14:20	Invited Speaker	Fang Xu	Study of alcohol selectivity of a room temperature operated gas sensor based on tio2
14:20-14:40	Invited Speaker	Dae-Sik Lee	Nano-chemical sensors technology for diet-monitoring/cancer-screening systems using exhaled breath
14:40-14:55	Oral Presenter	Tianshu Chu	Space confinement strategy and nano sensing performance of mxene materials
14:55-15:10	Oral Presenter	Yinpeng Wang	Active learning enabled designs for near-field enhanced thz metamaterial biosensors

S16. Triboelectric Nanogenerators and Self-Powered Sensors

Day 1 (30 July 2025, Wednesday)

Alhambra3

Chaired By: Prof. Po-Kang Yang

10:30-11:00	Keynote Speaker	Yunlong Zi	Tribo-photonics: an emerging field toward fully-self-powered wireless sensing
11:00-11:30	Keynote Speaker	Chenguo Hu	Achieving high output performance and efficient energy utilization of TENG
11:30-11:50	Invited Speaker	Yi Xi	Study on interface electrical properties of tribodielectric materials

Chaired By: Prof. Zhen Wen

13:30-14:00	Keynote Speaker	Zhen Wen	Triboelectric tactile sensors
14:00-14:30	Keynote Speaker	Kean C. Aw	Harvesting energy with electromagnetic, piezoelectric, and triboelectric technologies
14:30-14:50	Invited Speaker	Xuelian Wei	Sensory Evolution of intelligent Robots: innovative Exploration of Triboelectric Sensing for Object Identification
15:10-15:25	Oral Presenter	Xinge Guo	Biocompatible Ionic Hydrogel with Stable Energy Harvesting and Self-Powered Leaf Health Monitoring for Future Smart Farming

S16. Triboelectric Nanogenerators and Self-Powered Sensors

Day 1 (30 July 2025, Wednesday)

Alhambra3

Chaired By: Prof. Yina Liu and Prof. Xinkai Xie

16:00-16:20	Invited Speaker	Yina Liu	An Ultrasensitive Triboelectric Pressure Sensor for Multimodal Healthcare Applications
16:20-16:40	Invited Speaker	Min-Hsin Yeh	Enhancing self-induced polarization of pvdf-based triboelectric film by introducing functional g-c3n4 layers for ultrasensitive triboelectric pressure sensors
16:40-17:00	Invited Speaker	Mang Gao	Abrasive wear detection for metal-polymer plain bearing based on triboelectric effect under dry and boundary working condition
17:00-17:20	Invited Speaker	Xinkai Xie	Self-powered triboelectric neuromorphic devices for bioinspired tactile perception
17:20-17:35	Oral Presenter	Delong Han	An antifreeze gel as strain sensors and machine learning assisted intelligent motion monitoring of triboelectric nanogenerators in extreme environments

Day 2 (31 July 2025, Thursday)

Alhambra3

Chaired By: Prof. Chen-Kuei Chung

10:30-10:50	Invited Speaker	Po-Kang Yang	Recent advances in functional wearable design using layered nanomaterials
10:50-11:10	Invited Speaker	Chen-Kuei Chung	Laser processing and molding of flexible polymer for unique triboelectric nanogenerator and self-powered sensor application
11:10-11:25	Oral Presenter	Sabyrzhan Oralkhan	Smart Gripper with Triboelectric Sensors and Data-Driven Machine Learning for Object Classification

S17. Energy Harvesting Technology and Applications

Day 4 (2 August 2025, Saturday)

Alhambra2

Chaired By: Prof. Zhihui Lai and Prof. Junlei Wang

8:30-9:00	Keynote Speaker	Shengxi Zhou	Mechanical energy harvesters for powering wireless sensors in rail transit infrastructure
9:00-9:20	Invited Speaker	Zhihui Lai	Research on a self-powered rolling bearing fault diagnosis method with vibration energy harvesters for self-sensing
9:20-9:40	Invited Speaker	Junlei Wang	Energy concentration pipe based on passive jet control for enhancing flow-induced vibration energy harvesting
9:40-10:00	Invited Speaker	Yang Kuang	Track-borne magnetic field energy harvesters for electrified railways
10:00-10:15	Oral Presenter	Shuang Xiao	Reactive crystallization of halide perovskites for high-performance solar cells

S17. Energy Harvesting Technology and Applications

Day 4 (2 August 2025, Saturday)

Alhambra2

Chaired By: Prof. Dongmei Huang

14:00-14:20	Invited Speaker	Hiroko Yamada	Development of microbial fuel cells using waste cutting fluids
14:20-14:40	Invited Speaker	Dongmei Huang	Design and analysis of galloping energy harvesters
14:40-15:00	Invited Speaker	Guobiao Hu	Equivalent circuit modeling methods and their applications in vibration energy harvesting and control
15:00-15:20	Invited Speaker	Guozhi Zhang	Ultrasonic and rf pulse sensing multimodal sensing technology for partial discharge of power equipment

S18. Flexible, Stretchable and Wearable Sensors

Day 3 (1 August 2025, Friday)

Al andalus 1

Chaired By: Prof. Jae Yeong Park and Prof. Jungil Choi

8:30-9:00	Keynote Speaker	Michinao Hashimoto	Fabrication of Fluidic and Electronic Devices by 3D Printing
9:00-9:20	Invited Speaker	Jungwook Choi	Design, manufacturing, and applications of carbon nanomaterial-based physical sensors
9:20-9:40	Invited Speaker	Xianjie Pu	Wearable triboelectric sensor and its output enhancement
9:40-10:00	Invited Speaker	Wei Zhai	Tough and strong soft materials for flexible electronics

Chaired By: Prof. Bingpu Zhou and Prof. Jungil Choi

10:30-11:00	Keynote Speaker	Jae Yeong Park	Wearable biosensor patches for digital healthcare and medical applications
11:00-11:20	Invited Speaker	Bingpu Zhou	Flexible and wearable magnetized interface
11:20-11:40	Invited Speaker	Jungil Choi	Soft, skin-conformal multifunctional microfluidic platforms for precise monitoring of sweat biomarkers and temperature
11:40-12:00	Invited Speaker	Yan Wang	Electronic skins for continuous health monitoring
12:00-12:15	Oral Presenter	Wenlong Xu	Machine learning assisted gel-based flexible sensors and human-machine interaction

Chaired By: Prof. Tomoyuki Yokota and Prof. Junseong Ahn

13:30-14:00	Keynote Speaker	Tomoyuki Yokota	Sheet-type image sensor
14:00-14:20	Invited Speaker	Junseong Ahn	All-inorganic nanoribbon yarns for wearable transducers
14:20-14:40	Invited Speaker	Da Wan Kim	Multilayered bio-adhesive architectures for sensor interfaces: reversible skin attachment and structured suction layers
14:40-14:55	Oral Presenter	Rawat Jaisutti	Textile-Based Temperature Sensing for Smart Wearable Heating Systems

S18. Flexible, Stretchable and Wearable Sensors

Day 4 (2 August 2025, Saturday)

Al andalus 1

Chaired By: Prof. Wei Zhai

8:30-9:00	Keynote Speaker	Chuanfei Guo	Artificial skin for accurate measurement of pressure and vibration
9:00-9:20	Invited Speaker	Min-Ho Seo	Three synchronized, miniaturized, wireless imu sensors for automated gait and balance analysis system
9:20-9:40	Invited Speaker	Shipeng Zhang	Ultra-thin stretchable multifunctional wearable sensor for on-skin smart healthcare monitoring
9:40-9:55	Oral Presenter	Heng Zhang	Jellyfish-like gold nanowires as flexosers sensors for sweat analysis
9:55-10:10	Oral Presenter	Min Xu	Elastic nanoparticle-reinforced, conductive structural color hydrogel with super stretchability, self-adhesion, self-healing as electrical/optical dual-responsive visual electronic skins

Chaired By: Prof. Chuanfei Guo

10:30-11:00	Keynote Speaker	Jianyong Ouyang	Flexible sensors for food processing and food digestion monitoring
11:00-11:20	Invited Speaker	Kai Wu	Deformation/fracture behavior and electromechanical response of metal films
11:20-11:40	Invited Speaker	Tian Li	Bioinspired Hierarchical Soft Materials for Sensing Under Mechanical Stress
11:40-12:00	Invited Speaker	Junlong Yang	Synergistic interface integration in multi-layered systems for a resilient and adaptive electronic skin
12:00-12:15	Oral Presenter	Tian-run Lv	Harnessing built-in electric fields for enhanced electron transfer in biosensor for precise digital health assessment
12:15-12:30	Oral Presenter	Gangsheng Chen	Shear force enabled liquid metal circuits with hierarchical embedded structure for paper electronics

S18. Flexible, Stretchable and Wearable Sensors

Day 4 (2 August 2025, Saturday)

Al andalus 1

Chaired By: Prof. Tian Li and Prof. Junlong Yang

13:30-14:00	Keynote Speaker	inkyu Park	Micro/nano-enabled wearable/flexible sensors for smart healthcare and medical applications
14:00-14:30	Keynote Speaker	Ting Zhang	Flexible Sensing Electronics: from E-skin to Brain-computer interface
14:30-14:50	Invited Speaker	Sunghoon Lee	Skin-attachable next-generation wearable electronics
14:50-15:10	Invited Speaker	Yanhao Yu	Soft electronic packaging
15:10-15:25	Oral Presenter	Dengke Song	Regulating anti-freezing properties of gels by adjusting polymer monomer ratios for object recognition via flexible sensors
15:25-15:40	Oral Presenter	Bismark Asiedu Asante	Wand v2: seamless indoor and outdoor navigation using gps and imu data fusion

S19. Wearable AI Sensors

Day 3 (1 August 2025, Friday)

Alhambra3

Chaired By: Prof. Ting Zhang

13:30-13:45	Oral Presenter	Shengxin Xiang	A stretchable, self-assembled janus structured electronic skin for gesture recognition in deep learning
13:45-14:00	Oral Presenter	Xiao Wei	Fiber-based tactile sensor for intelligent human-machine interaction
14:00-14:15	Oral Presenter	Zixuan Zhang	Transfer learning enhanced lip language interface for silent speech recognition
14:15-14:30	Oral Presenter	Huiyun Zhang	A Strain-insensitive and Multifunctional Triboelectric Fiber Based on Liquid Metal and Silver Nanowires Synergic Network

S20. AI-Enhanced Tactile Sensors and E-Skin

Day 3 (1 August 2025, Friday)

Alhambra4

Chaired By: Prof. Po-Liang Liu

8:30-9:00	Keynote Speaker	Jun Wu	Flexible tactile devices and intelligent systems
9:00-9:30	Keynote Speaker	Haoyong Yu	Bio-inspired tactile sensor integrated with dexterous robotic hand for object grasping
9:30-9:50	Invited Speaker	Yan Wang	Deep learning-assisted triboelectric smart mats for personnel comprehensive monitoring toward maritime safety
9:50-10:10	Invited Speaker	Cheol Song	Optical force sensing for precision epidural injections

Chaired By: Prof. Jun Wu

10:30-11:00	Keynote Speaker	Po-Liang Liu	First-principles investigation of work function modulations induced by co-adsorption of NO , NO_2 , CO , CO_2 , H_2S , and O_3 on $\text{ZnGa}_2\text{O}_4(111)$ for gas sensing applications
11:00-11:20	Invited Speaker	Yang Li	hybrid wearable device based on integrated pressure sensing and visualization
11:20-11:35	Oral Presenter	Jingfeng Xu	Edge-ai enhanced multimodal tactile glove with in-sensor computing

S21. Haptic Technology and Applications

Day 2 (31 July 2025, Thursday)

Alhambra3

Chaired By: Prof. Xuhui Sun

13:30-13:50	Invited Speaker	Dengfeng Li	Wearable robotic haptic feedback technologies
13:50-14:10	Invited Speaker	Zhuang Zhang	Origami-based structures for multimodal soft actuation and high-fidelity haptics
14:10-14:30	Invited Speaker	Yitian Shao	Wide bandwidth tactile sensing of human and embodied intelligence
14:30-14:50	Invited Speaker	Yuan Ma	Developing advanced human-machine mechanical interfaces
14:50-15:05	Oral Presenter	Lei Shi	A Machine Learning-Based Knee Brace System for Walking Gait Analysis
15:05-15:20	Oral Presenter	Luwei Wang	Metaverse-Enabled Yoga Coach Avatar Using Multimodal insole Sensing System

S22. Advanced Sensors for Robots and Autonomous Systems

Day 3 (1 August 2025, Friday)

Alhambra3

Chaired By: Prof. Minglu Zhu

8:30-9:00	Keynote Speaker	Chee Kong Chui	Cyber-physical systems with edge computing for robotic automation in chemical development
9:00-9:20	Invited Speaker	Dongsheng Li	Perception and interaction for minimally invasive surgical robots
9:20-9:35	Oral Presenter	Juan Augusto Heins Herrera Ollachica	Human presence detection for rescue applications by using ultra-wideband radar and deep neural network: a framework for drone integration
9:35-9:50	Oral Presenter	Sungho Son	Analyzing camera recognition under simulated visual contamination with real-world validation
9:50-10:05	Oral Presenter	Xichen Hu	Magnetically gated mechanosensing with adaptive sensitivity enabled by machine learning
10:05-10:20	Oral Presenter	Ketan Sahu	A neuro-adaptive multi-pack grey wolf optimizer for resilient multi-rover path-planning in lunar-style terrains

S23. intelligent Sensors and Ai-Enhanced Humanoids

Day 1 (30 July 2025, Wednesday)

Al andalus 1

Chaired By: Prof. Qiongfeng Shi

16:00-16:30	Keynote Speaker	Xuhui Sun	Artificial olfaction platform based on MEMS gas sensor array
16:30-16:50	Keynote Speaker	Qiongfeng Shi	intelligent tactile sensors for multimodal perception and robotic e-skins
16:50-17:10	Invited Speaker	Long Liu	Self-powered human-robot interaction sensing system as a dexterous teaching platform for embodied artificial intelligence learning
17:10-17:30	Oral Presenter	Ya Tang Yang	Optical flow based obstacle avoidance of autonomous nano quadcopter using on board computing

S24. Enabling Technology for Digital Twin, Metaverse, and Smart Sensing Systems

Day 2 (31 July 2025, Thursday)

Alhambra2

Chaired By: Prof. Cong Yang

10:30-11:00	Keynote Speaker	Minglu Zhu	Sensing and feedback fusion for mutual perception in metaverse and robotics
11:00-11:20	Invited Speaker	Cong Yang	From Human-Computer interaction to Human-Robot Manipulation
11:20-11:35	Oral Presenter	Cheng-Lun Kan	in-situ measurement of residual stress and parameter optimization in laser drilling

S25. AIoT Technology and Applications

Day 2 (31 July 2025, Thursday)

AI andalus 1

Chaired By: Prof. Yang Kuang

10:30-10:45	Oral Presenter	Zixuan Zhong	Diffraction-integrated AOM-Based Φ -OTDR Achieves 1.5 m Spatial Resolution for Distributed Acoustic Sensing over a 50 km range
10:45-11:00	Oral Presenter	Fan-Jie Kung	Enhancing Speech Localization and Separation with Convolutional Neural Network -Based Voice Activity Detection in Noisy Acoustic Scenarios
11:00-11:15	Oral Presenter	Uzair Hussain Bhatti	An integrated AIoT and Generative AI Framework for Predictive Maintenance and Automated Resource Planning

S26. Sensors for Applications in Agriculture, Aquaculture, Food Technology (A2FT) and Harsh Environment

Day 4 (2 August 2025, Saturday)

Alhambra4

Chaired By: Prof. Sang-Seok Lee

8:30-9:00	Keynote Speaker	Toshihiro Itoh	Wearable bioacoustic devices for animal health monitoring
9:00-9:20	Invited Speaker	Xuming Zhang	Fiber-optic marine sensors for dual-parameter measurement of salinity and temperature
9:20-9:40	Invited Speaker	Michitaka Yamamoto	Development of a molecular weight measurement method using whistle acoustic signals for remote sensing of cattle-emitted gases
9:40-9:55	Oral Presenter	Md Shokor Rahaman	A Multi-Branch Hybrid Convolution-Transformer Architecture for intelligent Microseismic Event Detection

Chaired By: Prof. Sang-Seok Lee

10:30-11:00	Keynote Speaker	Xiaoxing Zhang	insulation monitoring of power equipment and green electrical technology
11:00-11:20	Invited Speaker	Naoki Shiraishi	Weight-detectable resonant sensors for monitoring volatile fatty acids (vfas) in the rumen of cows
11:20-11:40	Invited Speaker	Noriko Tsuruoka	Microperfusion needle for minimally invasive monitoring of biological components of individual plants

S26. Sensors for Applications in Agriculture, Aquaculture, Food Technology (A2FT) and Harsh Environment

S27. industry forum and Commercialization of Sensors and Transducers

Day 4 (2 August 2025, Saturday)

Alhambra 4

Chaired By: Prof. Chun-Wei Tsai

14:00-14:20	Invited Speaker	Tadao Matsunaga	Automatic light environment measurement system for plant cultivation utilizing fine-cut optic fiber
14:20-14:40	Invited Speaker	Tomoaki Kageyama	Development of maintenance-friendly water quality sensing devices: approaches using isfet and wifi-csi
14:40-14:55	Oral Presenter	Miheung Choe	Marine Environment Observation using an Acoustic Tomography System with Multi-Channel Acoustic Sensors and an Efficient Phase Correlation Signal Processing Algorithm
14:55-15:10	Oral Presenter	Sarika Yadav	Enhanced taste and quality analysis of soft drinks and milk samples using a single-channel hybrid e-tongue with an unsupervised machine learning
15:10-15:25	Oral Presenter	Shih-Yi Yeh	integrated Micro-LED Light Module and MEMS Mirror on a Chip for Visible Light Communication Application
