smartsystemsintegration

8th-10th April 2025 in Prague, Czech Republic

CO-LOCATED WITH
apc|m
europe

PRAGUE, CZECH REPUBLIC
8 – 10 APRIL 2025

smartsystemsintegration

Prague Congress Centre
April 8 - 10, 2025

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Conference Program – Tuesday, 8th April 2025

12:00 – 13:00	**Registration open**
13:00 – 16:00	**Opening Session** *Chaired by Klaus Beetz*
13:00	**Opening & Welcome together with apc|m** Harald Kuhn
13:15	**Greetings politicians from Saxony and Czech Rpublic (2x 15 min)** tbd
13:45	**SSI – Key Note** Heterogenous Integration - Evolution of a Speciality Foundry **Volker Herbig – X-FAB MEMS Foundry GmbH**
14:15	**apc|m – Key Note** tbd
14:45	**SSI – Key Note** Christina Hirschl – Silicon Austria Labs (SAL)
15:15	**apc|m – Key Note** tbd
15:45	**Q&A**
16:00 – 16:30	**Coffee break**
16:30 – 18:00	**Poster Pitches together with apc|m**
18:00	**Poster Reception**

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SILICON SAXONY THE HIGH-TECH NETWORK

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Conference Program – Wednesday, 9th April 2025

Time		
09:00 – 10:00	**Opening session Day 2** *Chaired by Klaus Beetz*	
09:00	**Welcome and Key Note by Local Chair** tbd	
09:30	**Key Note** Jörg Recklies – Infineon Technologies	
10:00 – 10:30	**Coffee break**	
10:30 – 12:00	**Session 1:** *Smart System Integration* (Track 2) Chair: Paddy French	**Session 2:** *Applications of Smart Systems* (Track 3) Chair: Sywert Brongersma
10:30	**Session Opener** Performance and Energy Consumption of Smart Sensors for Vibration-Based Anomaly Detection, **Martin Lehmann – Fraunhofer IIS/EAS**	**Session Opener** Smart City Pilots: Advancing Sustainable Mobility and Urban Innovation **Santiago Ferrer Jover – CT Engineering Group**
11:00	Smart System Integration for Photonics Based Medical Devices Perspective of Chips JU Pilot Line Project PhotonMed, **Teemu Alajoki – VTT**	SenMooVe: A Platform for Sensor-based Air Quality Monitoring in Public Transport Vehicles **Holger Döring – hd Management Consulting GmbH / Fraunhofer ENAS / TU Chemnitz**
11:20	FE approach to determine the effect of delamination in power electronic modules for automotive applications **Jain Chacko – Fraunhofer ENAS / TU Chemnitz**	Smart Analytical Microtechnology for aquaculture process Monitoring **Josep Maria Margarit-Taulé – Institut de Microelectrònica de Barcelona / Universitat Autònoma de Barcelona**
11:40	**Best Paper 2024:** Silicon FET Reservoir for dynamic edge vision **Diing Shenp Ang – Nanyang Technological University**	The Introduction of Printed Sensors in Battery Systems to Enhance State of Health Evaluation **Rúben Pedroso – CeNTI**
12:00 – 13:30	**Lunch break**	
13:30 – 14:30	**Sponsor and Exhibitor Pitches** *Chaired by Klaus Beetz*	
14:30 – 16:30	**Session 3:** *Artificial Intelligence* (Track 2) Chair: Christoph Koegler, Harald Mathis and Dirk Mayer	**Session 4:** *Sensing* (Track 1) Chair: Luis Fonseca and Sebastien Boisseau
14:30	**Session Opener** *Titel tbd* **Wenceslas Rahajandraibe – University of Aix-Marseille, France**	**Session Opener** The Impact of Ecosystems on the Growth of the Integrated Photonics Industry **Abdul Rahim – PhotonDelta**
15:00	Towards Fast Gaussian Process Regression Models: An FPGA-based Implementation of the RBF Kernel Matrix Computation **Anna Zuchna –TU Chemnitz / Fraunhofer ENAS**	Integration of Hydrogels on MEMS for Humidity Sensing Applications **Alexander Kaufmann – Infineon Technologies Dresden / TUBA Freiberg**
15:20	AI-driven workflow for chemical compounds classification from IR spectra of solutions **Luca Savio – Lutech Softjam / Fraunhofer ENAS**	Testing and Optimization of Flexible Pressure Sensors: A Drop Casting Approach with Piezoresistive Elastomers **Daniel Joch – Fraunhofer IISB**
15:40	Supporting Development of AI-Based Applications in Electronic Systems Domain Using a Modular Platform Approach **Dennis Hemker – Fraunhofer FIT / Hochschule Hamm-Lippstadt**	Ratiometric analysis of sensor recovery time for organ health monitoring **Avik Sett – TU Delft / Kolkata**
16:00	Preprocessing Techniques to Enhance Data Quality for AI Models in EMC Analysis **Jad Maalouly – Fraunhofer FIT / Hochschule Hamm-Lippstadt**	Universal PMUTs – Piezoelectric Micromachined Ultrasonic Transducers with an Automatic Wire Bond Process for Adaptive Acoustic Channels **Shubham Mulay – Fraunhofer ENAS / TU Chemnitz**
16:30 – 17:00	**Coffee break**	
17:00 – 18:00	**Posters, Exhibition, Networking**	
18:00	**Conference Dinner**	

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Conference program – Thursday, 10th April 2025

09:00 – 10:00	**Opening session Day 3** *Chaired by Klaus Beetz*
09:00	**Key Note** tbd
09:30	**Key Note** tbd
10:00 – 10:30	**Coffee break**
10:30 – 12:00	**Session 5:** *Technologies for Quantum Systems* (Track 4) Chair: Stefan Schulz
10:30	**Session Opener** tbd
11:00	Nanolithographic waveguides, couplers and ring resonators made of Si_3N_4 and AlN for photonics and quantum technologies **Julia Wecker – Fraunhofer ENAS / TU Chemnitz**
11:20	Superconducting Flexible Shilded Interconnects for Scalable Quantum Computing **Martijn Goedbloed – Fraunhofer EMFT / Fraunhofer IIS**
11:40	DNA origami based approach for an electrically driven single photon source for contaminant detection in water **Julia Hann – TU Chemnitz / Fraunhofer ENAS / CIC biomaGUNE**
12:00 – 13:30	**Lunch break**

	Session 6	Session 7
13:30 – 15:00	**Session 6:** *Technology* (Track 1) Chair: Mathias Kühnel	**Session 7:** *Sustainability* (Track 3) Chair: Han Shao
13:30	**Session Opener** Wafel Level Technologies for System Integration **Tino Jäger – X-FAB MEMS Foundry GmbH**	**Session Opener** Vision and Roadmap for Circularity of Printed Electronics in the Automotive Sector **Carolin Zachäus – VDI/VDE Innovation / VITO**
14:00	A novel high-speed camera system for capturing microfluidic droplets **Veiko Rütter – Tallin University of Technology / Estonian Military Academy**	Analysis of the Carbon Footprint of Self-Powered, Wireless Sensors **Peter Spies – Fraunhofer IIS / Fraunhofer IZM**
14:20	**Best Poster 2024:** Resonate-and-fire spiking neurons for target detection and hand gesture recognition: a hybrid approach **Ahmed Shaaban – Infineon München**	Real-time soil sensing system for farm monitoring all along FAMOSOS project **Elise Saoutieff – Univ. Grenoble Alpes**
14:40	Parylene C based memristors for the realization of ultra-thin and flexible smart systems **Franz Selbmann – Fraunhofer ENAS / TUBA Freiberg / TU Chemnitz**	Innovations in façade system: Smart Solutions for Optimizing Energy Efficiency in Buildings **Joana Gomes – CeNTI**

15:00 – 15:30	**Coffee break**
15:30-16:30	**Best poster and best Paper 2025!** Chaired by Harald Kuhn
16:30	**End of conference**

Poster pitches

Track	Nr	Presenter	Institution / Company	Title
1	122956	Max Huber	Fraunhofer ENAS	Influence of surface roughness on water diffusion in the direct wafer bonding interface
1	123318	Stefan Karanovic	AVL List GmbH	Advanced Current Measurement Sensor Enabled by Multi-Material Additive Manufacturing
1	123454	Dominic Richter	Fraunhofer ENAS / TU Chemnitz	Influence of plasma activation on direct wafer bonding of the heterogeneous material combination LiTaO3/SiO2
1	123471	Roy Knechtel	Schmalkalden University of Applied Sciences	Assessment for Identification of an Optimal Wafer Bonding Process for Industrial Production of Highly Integrated MEMS Applications in a Wafer Foundry
1	123641	Zaid Ali	Budapest University of Technology and Economics	Enhancing Stability and Performance in Renewable Energy Systems Through Optimization-Based Tuning of Grid-Forming Controllers
1	123883	Eunchong Park	Sungkyunkwan University	Latent Diffusion Model-based Plasma Etching Endpoint Detection with Optical Emission Spectroscopy
1	123884	Mathis Janßen	TU Chemnitz	DNA origami stability in liquid and defect analysis
1	123906	Mario Costanza	IPES, Tyndall National Institute,	Simulation Framework for the Design of Energy-Autonomous IOT Applications
1	123922	Stella Vallejos Vargas	Institute of Microelectronics of Barcelona	Electronic Gas/Vapor Sensors for Plant Monitoring
2	122900	George Kornaros	Hellenic Medditeranean University	IoT Devices Resource Management through Extending Kubernetes Device Plugin
2	123087	Cedric Mwangi	Kenyatta University	Wearable Devices Incorporating Multi-Modal Sensor Fusion and Machine Learning Algorithms for Monitoring and Early Detection of Seizures
2	123159	Ali Kareem Abdulrazzaq	TU Chemnitz	Bridging Verification and Testing with SysMLv2: A Practical Approach for IC Development
2	123299	Sanaz Ghazavi	TU Chemnitz	Customized SysMLv2 Profile for Model-Driven Circuit Test Development
2	123444	Katrin Unger	Silicon Austria Labs GmbH	Industrial Internet of Things Sensor System: Encapsulation for Robust Performance in Harsh Environments
2	123467	Harshita Sharma	Fraunhofer ENAS	Development of a Python-Based Mastercurvecreator Tool for Viscoelastic Materials
2	123475	Elfi Fertl	Infineon Technologies AG Neubiberg	Beam Steering with AURIX microcontroller vs. Additional Loudspeaker with PSoC microcontroller
2	123663	Xiangzhen Kong	Eindhoven University of Technology	Developing A Digital Twin For Predicting Visual Comfort In Office Environments: An Experimental Approach
2	123744	Alessio Viticchiè	AlphaWaves	AI-Driven Automation for Industrial Digitalization: A Scalable Framework for Network Discovery and Digital Twin Deployment
2	123874	Anılcan Erciyes	Marmara University	High-Fidelity Synthetic Data-Driven Machine Learning Framework for Predictive Maintenance of Three-Phase Industrial Motors
2	123878	Binaman Amuri	Marmara University	Generative Pattern Learning for Missing Sensor Data Imputation in Industrial IoT
2	123896	Jaehyeon Kim	Sungkyunkwan University	Root Cause Analysis of Plasma Process from Optical Emission Spectroscopy Signals with Recurrent Neural Network
2	123899	Ferdinand Heinrich	Fraunhofer EMFT	Flexible Data Augmentation Methods for Federated Learning with Non-IID Data Distribution
2	123900	Joris Liebermann	Fraunhofer IIS/EAS	Self-Detection of Mounting Looseness with a MEMS Accelerometer
3	123159	Brendan O'Flynn	University College Cork	AURORA: Precision Tracking Systems for Cultural Heritage Monitoring
3	123313	Elise Saoutieff	University Grenoble Alpes	Bio-sensing system for water real-time monitoring in BioSensei project
3	123315	Chang-Hua Lin	National Taiwan University of Science and Technology	Comparison and verification of control strategies of energy storage systems in DC Microgrids

3	123316	Chang-Hua Lin	National Taiwan University of Science and Technology	Compensation Techniques for Voltage Detection in Battery Management Systems
3	123914	Paddy French	Delft University of Technology	Bio-Remote Sensing in Real-Time Thermographic Face Detection and Respiratory Rate Measurement
4	123455	Abdelatif Mariche	Budapest University of Technology and Economics	Photonics and Quantum Technology Relevant Properties of Nitrogen-Vacancy Centers in Diamond
4	123751	Torsten Thieme	DEAXO GmbH	Advanced micro integration technologies for fabrication of micro-ion-traps for a trapped-ion quantum computer
4	123856	Travis Scott	Fine Tech	Indium bump Interconnect flip chip bonding