The XV European Magnetic Sensors and Actuators Conference

Program

EMSA
Eindhoven, 6 - 9 July 2026

Monday, July 6

Auditorium Building
Eindhoven University of Technology

14:00 - 16:00	Visit to the labs: Physics of Nanostructures at TU/e
16:00 - 18:00	Registration & Welcome Reception

Tuesday, July 7

Senaatszaal, Auditorium Building

08:00	Registration & Welcome Coffee	
09:00	Opening Session	

Chair: Myriam Pannetier-Lecoeur

09:15	AI-aided flexible, printable, and eco-sustainable magnetoelectronics for smart skins, smart textiles, and soft-bodied robots	**Denys Makarov**, *Helmholtz-Zentrum Dresden-Rossendorf*
09:45	Design optimization of magnetic tunnel junctions-based sensors for picotesla detection	**Lucia Risoli**, *SPINTEC and University Grenoble Alpes CNRS*
10:00	Very long-term magnetic stability: On the path to identify the output very slow drift observed in PHMR sensor.	**DA Bown'Fèrèma Erika**, *Normandie University UNICAEN*
10:15	Exploring optical methods for reprogramming spintronic sensors	**Floris Van Riel**, *Eindhoven University of Technology*
10:30	Coffee Break	

Chair: Christophe Dolabdjian

11:00	Computational tools for the design and optimization of sensors and actuators	**Manfred Kaltenbacher**, *TU Graz*
11:30	AI-Driven Modeling of Modulated Magnetoelectric Sensors	**Ari A. Ahmad**, *Kiel University*

11:45	Simulation and Optimization of a Dual Halbach Permanent-Magnet Field Source	**Cristian Musuroi**, *Transilvania University of Brasov*
12:00	Non-Destructive Analysis of Magnetic Layer Properties of Encoders using Simulation-Based Hysteresis Modeling	**Florian Slanovc**, *Silicon Austria Labs*
12:30	Lunch & Poster Session	
13:30	Poster Session	

Chair: Perla Malago

14:30	Integrated micro-magnets: enabling the next generation of MEMS and sensors	**Nora M. Dempsey**, *University Grenoble Alpes, CNRS*
15:00	Magnetic MEMS for reconfigurable magnonic devices	**Riccardo Bertacco**, *Politecnico di Milano*
15:15	Exchange-Bias SAW Sensors for Zero-Bias Field Operation	**Felix Weisheit**, *Kiel University*
15:30	Real-time monitoring of viscosity and density with a magnetoelastic sensor	**Raquel Loriente**, *University Complutense of Madrid*
15:45	Tunable Microwave Scattering Signatures of 3D Sensing Platforms Based on Ordered Magnetic Microwire Assemblies	**Pilar Marín**, *Universidad Complutense de Madrid*
16:00	Coffee Break	

Special Session with Industry

Chairs: Diana C Leitao and Karen M Dowling

16:30	Introduction	EMSA 2026 Chairs
16:35	Casimir Institute	**Erwin Kessels**, *Eindhoven University of Technology*
16:50	Technological advances and challenges in Infineon's TMR sensors	**Giovanni Masciocchi**, *Infineon Technologies AG*
17:10	Magnetization technology for high precision magnetic encoder scales	**Rolf Slatter**, *ITKNet*
17:30	Cross field influences for 3D magnetoresistive sensing	**Andreas Kehlberger**, *Sensitec GmbH*

17:50	BMM350, A Monolithically Integrated TMR 3-Axis Magnetometer for Consumer Electronics Applications	**Tiago Costa**, *Bosch Sensortec*
18:10	Development of Shape-Memory Functionality in Ni-Fe-Ga Microwires	**Rastislav Varga**, *RV Magnetics*
18:30	Session Closed	

Wednesday, July 8

Senaatszaal, Auditorium Building

08:00	Registration & Welcome Coffee	

Chair: Reinoud Lavrijsen

09:00	Magnetic actuation for biomedical applications	**Jaap M.J. den Toonder**, *Eindhoven University of Technology*
09:30	Spintronics sensor for neuronal activity detection	**Myriam Pannetier-Lecoeur**, *Université Paris-Saclay, CEA*
09:45	Programmable Magneto-Active Melt Electrowritten Fibers for Skeletal Muscle Engineering	**Essa Al-jehani**, *Eindhoven University of Technology*
10:00	Magnetoelectric Laminates Based on PVDF and Fe–Si–B Amorphous Ribbons for Sensing and Cellular Stimulation	**Anastasia Railean**, *National Institute for Research and Development for Technical Physics*
10:30	Coffee Break	

Chair: Tiago Costa

11:00	Integrated Broadband Current Sensing: Circuit Design and Limitations	**Marco Crescentini**, *University of Bologna*
11:30	A universal approach for field shaping of wafer integrated PowderMEMS® micromagnets for highly miniaturized back-biased CMOS Hall sensors	**Ole Behrmann**, *Fraunhofer-Institute for Silicon Technology ISIT*
11:45	Fabrication of sub-mm NdFeB micromagnets via laser-micromachining suitable for application in magnetic MEMS devices	**Stefano Lumetti**, *Silicon Austria Labs GmbH*
12:00	Improving Metal-Semiconductor Contact Resistance in Extraordinary Magnetoresistive Sensors	**Sreejith Sasi Kumar**, *Technical University of Denmark*
12:15	BIRD: A Current-readout CMOS chip with a 1µT Offset (3σ) using the Spinning-Voltage technique for internal Si and external GaN Hall-plates	**Floris van Mourik**, *Delft University of Technology*
12:30	Lunch & Poster Session	
13:30	Poster Session	

Chair: Takahide Kubota

14:30	Magnetometry to unveil fundamental questions, from the moons formation to habitabilty zones	**Marina Díaz Michelena**, *Space Magnetism Area, INTA*
15:00	Multifunctional High-Resolution Flexible Elliptical Planar Hall Effect Sensors for Magnetometry and Strain Sensing	**Daniel Lahav**, *Bar-Ilan University*
15:15	Macrospin toy model program as a help for magnetic magnetoresistive sensor stack prediction	**Aurélie Solignac**, *Université Paris-Saclay, CEA*
15:30	Sensitivity Enhancement of Vicinal La2/3Sr1/3MnO3 Anisotropic Magnetoresistance Sensors using Engineered Flux Concentrators	**Tagi Tagiyev**, *Université Caen Normandie*
15:45	Geometry comparison of offset, sensitivity, and noise of AlGaN/GaN Hall-effect sensors in GaN-on-SOI technology	**Stefhen Heck**, *Delft University of Technology*
16:00	Coffee Break	

Chair: David Navas

16:30	Porous polymer sponge and magnetic nanoparticles: a magneto-elastic energy harvester	**Paola Tiberto**, *Istituto Nazionale di Ricerca Metrologica INRIM*
16:45	Harmonic Hall Voltage Analysis of Current-Induced Torques for Magnetic Sensor Design	**Robbe Knevels**, *Eindhoven University of Technology*
17:00	Magnetoelastic Ribbons: Optimization for Mass Sensing and Application to Hydrogel Gelation Monitoring	**Ana Catarina Lopes**, *University of the Basque Country, UPV/EHU*
17:15	Langevin-Based SPIO Magnetometer for Remote DC Magnetic Field Sensing	**Alexey Tonyushkin**, *Oakland University, Rochester*
17:30	Poster Session	
18:30	Walk to dinner venue	
19:00	**Conference Dinner** **Restaurant Kazerne, Eindhoven city center**	

Thursday, July 9 Senaatszaal, Auditorium Building

08:00	Registration & Welcome Coffee	

Chair: Riccardo Bertacco

09:00	Magnetic sensing with NV centers in diamond and application to extreme conditions	**Jean-François Roch**, *ENS Paris-Saclay & University Paris-Saclay*
09:30	Multiphysics Model of a Spin Hall Magnetoresistance Magnetic Field sensor	**Michaela Kuepferling,** *Istituto Nazionale di Ricerca Metrologica INRIM*
09:45	Low-frequency noise and nano-Tesla detection limit in planar-Hall magnetoresistive (PHMR) sensors	**Proloy Taran Das**, *Helmholtz-Zentrum Dresden-Rossendorf*
10:00	A skyrmion magnetic field sensor for ultra-sensitive out-of-plane magnetic field detection	**Johanna Fischer**, *Université Grenoble Alpes, CNRS, CEA, SPINTEC*
10:15	Large-Area Magnetoresistive Electronic Skin for High-Resolution Magnetic Field Mapping	**Yevhen Zabila**, *Helmholtz-Zentrum Dresden-Rossendorf*
10:30	Coffee Break	

Chair: Nicoleta Lupu

11:00	Comparison of Racetrack and Dual-rod Cores for Usage in Micro-fluxgates	**Jiri Maier**, *Czech Technical University*
11:30	Anomalous Nernst effect in Co/Pt multilayers on flexible substrates	**Pablo Martinez Outomuro**, *Instituto de Ciencia de Materiales de Madrid*
11:45	Micro-robot actuation in microfluidics	**Chia-Yuan Chen**, *National Cheng Kung University*
12:00	Standardized Magneto-Optical Sensor Technology For Testing GOES	**Morris Lindner**, *INNOVENT e.V.*
12:15	**Awards & Closing Session**	
12:30	Lunch	

Satellite Workshop

Developing Standards in Magnetics: IEEE Magnetics Society and IEEE Standards Association Workshop
Theme 1: Standardizing Sensors

Chairs: Proloy Das and Mahmoud Rasly

14:00	Welcome and Introduction	*Organizers and IEEE Standards Association Representative*
14:20	**Focus:** From laboratory methods to standardization: lessons from microfluidics for magnetic sensor systems	**Vania Silverio**, *INESC-MN and IST*
14:40	**Focus:** Micromagnets, magnetic sensors and magnetic position systems: design, fabrication, integration, and standardization challenges in magnetic microsystem applications	**Stefano Lumetti**, *Silicon Austria Labs*
15:00	**Focus:** Magnetic characterization at the nanoscale	**Paola Tiberto**, *INRIM*
15:20	**Focus:** Standardization of magnetic measuring scales for linear and angular position systems: industry perspectives and challenges.	**Rolf Slatter**, *ITKNet*
15:40	Wrap up and key points for discussions	
15:50	Networking Session 1: Coffee Break	
16:25	Move to discussion rooms	
16:30	Parallel sessions	Room 1: Academic & Research Perspectives
		Room 2: Materials, Thin Films, Patterning & Reference Structures
17:15		Room 1: System Integration and Emerging Platforms
		Room 2: Instrumentation and Electronics
18:00	Networking Session 2: Drinks & Bites	

The program is subjected to changes

Poster Presentations

Tuesday	July 7	13h30 - 14h30 - Session 1	Senaatszaal Auditorium Building
Wednesday	July 8	13h30 - 14h30 - Session 2	
		17h30 - 18h30 - Session 3	

ID	Presentation Title	Presenting Author	Author Present for discussion	Main Topic
P01	Tuning Magnetostrictive $Fe_{70}Ga_{30}$ Thin Films for SAW-Based Magnetic Sensors through Thickness, Substrate, and Geometry	Muhammad Sahil	Session 1	1. Magnetic Sensors
P02	Enhanced Magnetic Resolution in Elliptical Planar Hall Effect Sensors via Non-Collinear Anisotropy Engineering	Daniel Lahav	Session 3	
P03	Contactless Measurement of Automobile Brake System Parameters Using Magnetic Microwires	Samuel Onufer	Session 1	
P04	Electrodeposition and Characterization of FeNi Alloys on Copper Substrates for Fluxgate Sensor Applications	Panagiotis Priftis	Session 3	
P05	Flexible-Fluxgate Current Sensor with Improved Geomagnetic Field Immunity	Antonín Platil	Session 1	
P06	A highly unconventional Hall sensor based on skyrmions	Aitor Arredondo-López	Session 3	
P07	Optimizing top-pinned magnetic tunnel junctions for novel sensing applications	Huib Dijkstra	Session 1	
P08	Rapid design of magnetic MEMS: micro-speaker and micro-mirror	Perla Malagò	Session 2	2. Magnetic Actuators & MEMS
P09	Grain induced uniaxial magnetic anisotropy in AlScN/CoFeB thin films	Manoj M Matpathi	Session 1	
P10	Giant Reversible Strain of 16% in Ni-Fe-Ga Shape Memory Microwires	Martin Eliáš	Session 2	
P11	Linear Variable Inductive Transducer Position Sensor with EE Shape Armature	Mehran Mirzaei	Session 1	
P12	Introducing PYRAMID: Inverted Pyramid 3-axis Hall-effect magnetic sensor with offset cancellation	Jacopo Ruggeri	Session 3	
P13	Development of a High-Sensitivity Planar Hall Magnetoresistance Sensor for Non-Invasive Vascular Monitoring	Tung Hoang	Session 2	3. Biomedical Applications of Sensors & Actuators (S&A)
P14	Fabrication of Flexible Giant magnetoresistance (GMR) sensors for recording of neural signals	Sayar Das	Session 3	
P15	Microdisks as magnetic labels for GMR biosensors	Maria G Ramón	Session 2	
P36	Towards quantitative magnetic LFAs: comparison of inductive and GMR detection	Nordin Trifiro	Session 3	
P16	From Quantum Sensing to teaching Quantum with NV Centers	Berkay Isik	Session 2	4. Quantum-
P17	Enabling Compact Magnetic Bias Sources for Next-Generation Sensors and Quantum Processors Through Thermally Stable PowderMEMS® Micromagnets	Mani T Bodduluri	Session 1	

P18	A traceable system for the calibration of optically pumped magnetometers	Marco Coïsson	Session 2	based Sensors
P19	Alignment and calibration of magnetometer suite using geomagnetic storms	Michal Janosek	Session 1	
P37	Decoherence Spectroscopy of Spin Waves in van der Waals Antiferromagnets	Debarghya Dutta	Session 1	
P21	Amorphous Bistable Microwire Sensor for Uniaxial Oscillations with Ultra-Low-Power Electronics	Patrik Jacko	Session 1	5. Magnetic Sensor Circuit Interfaces
P22	Offset Optimization of Orthogonal Fluxgate with Multiple Microwires	Michal Dressler	Session 2	
P23	Time-Domain Fluxgate-Based Active Magnetic Field Cancellation in a Braunbek Coil System	Maria Tsironi	Session 3	6. Metrology Techniques
P25	Investigation of the 3D Spatial Response of Planar Hall Magnetoresistance Sensors	Christophe Dolabdjian	Session 1	9. Modeling & Simulation
P26	Finite element modeling of magnetoactive polymer composites for the flux control of microfluidic systems	David De Cos	Session 3	
P27	Study on Demagnetization of Complex Structures for Space Applications	Vojtech Petrucha	Session 1	
P28	Micromagnetic study of buffer layer effect in SOT-enabled single-element magnetic sensors	José F Moutinho	Session 3	
P29	Stack-Driven Switching Field Engineering in Bottom-Pinned Perpendicular Magnetic Tunnel Junctions	Maria A Syskaki	Session 2	10. Novel Magnetic Materials and Other Applications
P30	Effect of RAM Mixing Duration on Transport and Magnetic Properties of Fe-Al Soft Magnetic Compacted Powder Cores	Martin Tkáč	Session 3	
P31	Composition-Driven Enhancement of Magnetostriction and Thermal Stability in Co2FeAlxSi1-x Heusler Alloys	Liang Yao	Session 2	
P32	Reversible Tuning of Magnetic Anisotropy in Stress-Annealed FINEMET Wires for Multi-Mode Sensors	Tibor-Adrian Óvári	Session 3	
P33	Integration of Magnetic Nanofibers with Permalloy Thin Films and Sensing Applications	Marius Volmer	Session 2	
P34	Real-Time Magnetic Field Sensing Using Planar Hall Magnetoresistance (PHMR) Sensor Integrated on a Robotic Arm	Bibhutibhusan Nayak	Session 3	
P35	Application of Magnetic Microwires for Stress Sensing in Conveyor Belt Adhesive Joints	Miroslav Komorník	Session 2	