

MID Congress | 2025

Mechatronic Integration Discourse

2.-3. July 2025

Amberg Congress Center, Germany

16TH INTERNATIONAL MID CONGRESS

(Mechatronic Integration Discourse)



Preliminary Program

Opening
Keynote by
**Nano
Dimension**

**12 Scientific
Sessions &
Networking**

Exklusive
Technical Tour
Siemens Plant
Amberg

MID Best PhD
and Best Paper
Awards

IPC Workshop
on 3D
Electronics
Standardisation



In cooperation with:



| ABOUT THE MID MECHTRONIC INTEGRATION DISCOURSE 2025

The global megatrends of 2025—rising energy demand, CO₂ reduction, urbanization, automation, and digitalization—are intensifying the need for compact, efficient, and intelligent technologies. Mechatronic Integrated Devices (MID), which integrate electronic functions directly into three-dimensional mechanical structures, offer a powerful response to these challenges. They enable miniaturized, material-efficient, and functionally integrated solutions across industries such as automation, medical technology, and smart infrastructure.

The **3D MID Congress 2025** at the **Amberg Congress Center** brings together experts from research and industry to present and discuss the latest developments in MID technologies. This year's focus includes topics like **MID design, integrated sensors, antenna structures, additive and hybrid manufacturing**, and the role of MID in resilient, localized production systems. Highlights of the congress include an industrial exhibition, and a **dedicated IPC workshop** on standardization in 3D electronic integration.



A particular highlight is the **technical tour of the Siemens Electronics Plant in Amberg**, offering participants a real-world view of digitalized, automated production at a world-class facility. With its rich program of presentations, networking, and hands-on experiences, the 3D MID Congress 2025 provides deep insight into how MID technologies help shape the intelligent, sustainable systems of tomorrow.



| PUBLICATION

The scientific contributions will be presented orally in various sessions or as poster presentations. All scientifically accepted papers, will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements.

| OPENING TIME CONFERENCE

Wednesday, 2nd July 2025, 08:30 AM – 05:15 PM
Thursday, 3rd July 2025, 08:30 AM – 05:00 PM



| CONTACT



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Dear distinguished experts in Mechatronic Integrated Devices!

The Internet of Things (IoT) is reshaping our daily lives: Devices like laptops, tablets, and smartphones translate speech in real time, answer semantic questions, and assist us seamlessly. Autonomous vehicles avoid traffic using live data and alert others to hazards. In smart factories, objects exchange data, parts select optimal processing routes, and machines report maintenance needs early. Wearables monitor vital signs, track movement, and display key information through glasses.

These innovations—part of Cyber-Physical Systems—combine sensing, intelligence, energy management, and communication in compact, lightweight designs. Antennas must be integrated three-dimensionally, as space for flat PCBs and mechanical parts becomes limited.

Mechatronic integration spans from MEMS on the chip level to complete systems, merging mechanics, electronics, thermals, magnetics, optics, and computer science. Spatial solutions are increasingly vital, and processes like structuring, metallization, and printing must evolve to embed functions on diverse materials—ceramics, fabrics, films, paper, even skin.

The **3D MID Mechatronic Integration Discourse 2025** in Amberg will explore topics ranging from additive mechatronics and radar systems to advanced contacting and thermal management. This unique event offers insights, research, and networking opportunities for innovators and industry experts alike.

Join us in Amberg for two inspiring days of mechatronic innovation!

A handwritten signature in blue ink that reads 'Jörg Franke'.

Prof. Dr. Jörg Franke

A series of overlapping, flowing blue lines that create a decorative, wave-like pattern across the bottom of the page.

| ORGANIZING COMMITTEE

Prof. Franke, J. – University Erlangen-Nuremberg, GER
Dr. Pojtinger, A. – 2E mechatronic GmbH & Co. KG, GER
Dr. Reinhardt, A. – Seho Systems GmbH, GER
Prof. Risch, F. – Managing Director 3-D MID e.V., GER
Landvogt, S. – Commercial Management 3-D MID e.V., GER






| INTERNATIONAL PROGRAM COMMITTEE

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Rohde, H. - Robert Bosch GmbH, GER
Prof. Schulze, V. - Karlsruhe Institute of Technology, GER
Weisbrod, E. - Siemens AG, GER
Zadarej, V. - Molex Inc., US
Prof. Zimmermann, A. - Hahn-Schickard, GER






TIME SCHEDULE

OVERVIEW OF THE CONFERENCE

WEDNESDAY, 2ND JULY 2025

08:30 AM	Welcome Coffee		
09:15 AM	Welcome Speech, Prof. Franke, J., FAU Erlangen-Nürnberg, FAPS		
09:35 AM	Opening Keynote I: Dr. Del Rey, R., NanoDimension		
10:05 AM	Opening Keynote II: Speaker Invited - *Confirmation Pending.		
10:35 AM	Coffee Break		
	Track 1: Main Hall, 1st floor	Track 2: Conference Room, 2nd floor	
11:05 AM	Session 1: MID based Radar Systems	Session 2: 3D MID Design Tools	
12:20 AM	Lunch Break in Foyer Ground Floor and Poster Session		
01:30 PM	Session 3: Additive Mechanics	Session 4: Sensor Integration in MID	
02:45 PM	Coffee Break		
03:15 PM	Session 5: Innovative Additive Manufactured Antenna Technologies	Session 6: Optical systems and Wire-based Additive Mechatronics	
05:30 PM	Evening Event @ Amberg Congress Center (ACC)		

THURSDAY, 3RD JULY 2025

	Track 1: Main Hall, 1st floor	Track 2: Conference Room, 2nd floor	
09:00 AM	Session 7: Advancements in Machine Learning and Machine Vision	Session 8: Medical Applications with MID	
09:50 AM	Coffee Break		
10:20 AM	Session 9: Laser-Based Joining and Metallization for MID	Session 10: Advanced Thermal Management for MID	
11:35 AM	Lunch Break in Foyer Ground Floor and Poster Session		
12:40 PM	Session 11: Advanced Contacting Techniques for Printed Electronics and Mechatronics	Session 12: Metallization for Power Electronics and Solid State Batteries	
01:55 PM	Coffee Break		
02:10 PM	Closing Keynote I: Fourcade, F., IPC		
02:35 PM	Closing Keynote II: Heisler, P., Siemens AG		
03:00 PM	MID Awards and Closing Words		
03:15 PM	End of the Conference and Transfer in Special Events		
03:30 PM	Technical Tour @ The Impulse of Electronics Work Amberg (EWA)	IPC Workshop on standardization of 3D plastronics	
05:00 PM	End of Special Events		

TIME SCHEDULE

DETAILED TIME PLAN

WEDNESDAY, 2ND JULY 2025



08:30 AM	Welcome Coffee		
09:15 AM	Welcome Speech , Prof. Dr. Franke, J., Prof. Dr. Risch, F., FAU Erlangen-Nürnberg, FAPS		
09:35 AM	Opening Keynote I: Latest news and applications of Nano Dimension Dr. Del Rey, R., Nano Dimension		
10:05 AM	Opening Keynote II: Speaker Invited *Confirmation Pending.		
10:35 AM	Coffee Break		
	Track 1: Main Hall, 1st floor	Track 2: Conference Room, 2nd floor	
	Session 1: MID based Radar Systems Session Chair: tbd.	Session 2: 3D MID Design Tools Session Chair: tbd.	
11:05 AM	Development of MID based fully Integrated Radar Systems for the Automotive Industry Diri, J., Fraunhofer IEM	MID-Mechatronic Technologies from the Perspective of Mechanical Design and the Development Process Braun, S., MDI Steffen Braun	
11:05 AM	MID as an Enabler for the Integration of 77GHz Automotive Radar Systems onto Plastic Surfaces Mager, T., Fraunhofer IEM	Systems Engineering Methods for Automating MID Design Schobert, M., FAU, FAPS	
11:05 AM	Speaker Invited *Confirmation Pending	Development for 3D MID Design Tools Zeitler, J., FAU, FAPS	
12:20 AM	Lunch Break in Foyer Ground Floor and Poster Session		
	Session 3: Additive Mechatronics Session Chair: tbd.	Session 4: Sensor Integration in MID Session Chair: tbd.	
01:30 PM	Rebooting Additive Electronics: Reliable End-to-End Fabrication Dickerboom, J., KRONOS Mechatronics	Comparative Analysis of Manuf. Approaches for Sensor-Integrated Machine Comp.: Case Study on 3D-MID, Flex-Rigid PCBs, & Tradit. PCBs Piechulek, N., FAU, FAPS	
01:55 PM	New Materials for the Realization of Product-Related Prototypes Deckert, M., Harting	Advances in Laser Processing of Printed Thin Films for Sensor Applications Fink, S., Fraunhofer ILT	
02:20 PM	Plastronic Functionalization of 3D-Printed Composite Parts made of PA6 and Short Carbon Fibers reinforced with Continuous Carbon Fibers Gerdil, D., AMPERE	Circuit and Sensor Applications on Plant Leaves Using Spray-Coated Conductive Polymers Duong, B., Fraunhofer EFMT	
02:45 PM	Coffee Break		

*Session chairs and scheduled sessions are subject to change

TIME SCHEDULE

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WEDNESDAY, 2ND JULY 2025

08:30 AM	Coffee Break 	
	Track 1: Main Hall, 1st floor	Track 2: Conference Room, 2nd floor
	Session 5: Innovative Additive Manufactured Antenna Technologies Session Chair: tbd.	Session 6: Optical Systems and Wire-based Additive Mechatronics Session Chair: tbd.
03:15 PM	Metasurface Antenna for LEO Satellite Communication at 30 GHz via LDS Hobballah, H., S2P	Investigating Wire Encapsulating Additive Manufacturing for Mechatronic Integrated Devices Ankenbrand, M., FAU, FAPS
03:40 PM	3D Functionalization for High Frequency Applications (3D-HF-MID) Bader, T., FAU, LHFT	Title Pending Confirmation Boxberger, L., Fraunhofer IWU
04:05 PM	Speaker Invited *Confirmation Pending	In-Situ Refractive Index Measurement of ZIF-8 Thin Films on Optical Fibers Abb, V., OTH Regensburg
05:30 PM	Evening Event @ Amberg Congress Center (ACC) 	



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08:30 AM	Welcome Coffee 	
	Track 1: Main Hall, 1st floor	Track 2: Conference Room, 2nd floor
	Session 7: Advancements in Machine Learning and Machine Vision Session Chair: tbd.	Session 8: Medical Applications with MID Session Chair: tbd.
09:00 AM	The Potential of Hybrid and Fully Quantum ML Models in Machine Vision: A State-of-the-Art Review Schlichte, S., FAU, FAPS	PreciEye – Precision Enhancement of Contactless Intraocular Pressure Measurement for Self-Diagnosis Engelhardt, H., FAU, FAPS
09:25 AM	Data and AI platforms for the electronics manufacturing industry Raffin, T., Tensoryze	Speaker Invited *Confirmation Pending
09:50 AM	Coffee Break 	
	Session 9: Laser-Based Joining and Metallization for MID Session Chair: tbd.	Session 10: Advanced Thermal Management for MID Session Chair: tbd.
10:20 AM	Influence of Weld Seam Geometry and Length on the Strength and Connection Area for Laser Beam Welding of Copper Seffer, S., Laser Zentrum Hannover	Evaluation and Improvement of the Thermal Performance of Power Modules using the FEM and MMAM Lehmann, C.-L., KIT, wbk
10:45 AM	Recent advantages on LASER induced direct metallization of Al ₂ O ₃ and ZTA ceramics Schilling, A., University of Stuttgart	Design and Electro-Thermal-Simulation of a Printed Heating Structure for Radome De-Icing Siah, K. S., FAU, FAPS
11:10 AM	Fabrication of Pre-Alloyed Copper-Titanium Composite Layers on Ceramic Substrates for Power Electronics using Laser Powder Bed Fusion Hecht, C., FAU, FAPS	A Comprehensive Study on the Thermal Properties of MID Lacquer Technologies: Evaluating Aluminum as a MID Base Material Mecke, B., Fraunhofer IEM
11:35 AM	Lunch Break in Foyer Ground Floor and Poster Session 	



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THURSDAY, 3RD JULY 2025

11:35 AM	Lunch Break in Foyer Ground Floor and Poster Session		
	Track 1: Main Hall, 1st floor	Track 2: Conference Room, 2nd floor	
	Session 11: Advanced Contacting Techniques for Printed Electronics and Mechatronics Session Chair: tbd.	Session 12: Metallization for MID, Power Electronics and Solid State Batteries Session Chair: tbd.	
12:40 PM	Modular Lab. Network for Adv. Joining Technology: Process Development of Mechatronic Integrated Components Hertweck, B., Kern-Liebers	Atmospheric Plasma Spraying for Coating Copper Current Collectors on Solid-State Battery Components Borchers, A., Fraunhofer IKTS	
01:05 PM	Towards an Innovative Approach to Connect Printed Electronics to the Aircraft Cabin Electrical System Fröhlich, J., FAU, FAPS	Matallization Technologies for Ceramics Krug, M., Fraunhofer IKTS	
01:30 AM	Near-Infrared LED Reflow Soldering for Flexible Hybrid Electronics Wenger, T., TH Nuremberg	Near-Infrared Laser Structuring and Wet-Chemical Metallization of Aluminum-Oxide using a Laser Absorption Layer Braeuer, P., FAU, FAPS	
01:55 PM	Coffee Break		
02:10 PM	Closing Keynote I: Standardization of 3D Plastronics, Fourcade, F., IPC International, Inc.		
02:35 PM	Closing Keynote II: Mastering VUCA Challenges with CRISP Manufacturing, Heisler, P., Siemens AG		
03:00 PM	MID Awards (Best Paper & PhD-Thesis) and Closing Words Prof. Dr. Risch, F., FAU Erlangen-Nuremberg, FAPS		
03:15 PM	End of the Conference and Transfer in Special Events		
03:30 PM	Technical Tour @ The Impulse of Electronics Work Amberg (EWA) 	IPC Workshop on standardization of 3D plastronics 	
	 		
05:00 PM	End of Special Events		

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REGISTRATION

Secure your spot at the Congress 2025 and benefit from exciting lectures, networking opportunities and inspiring discussions.

https://www.3d-mid.de/kongress/teilnehmer/teilnehmer_anmeldung.php

CONGRESS FEES (PLUS VAT)

Standard fee	€ 1.180,-
Reduced fee*	€ 880,-

*for members of 3-D MID e.V. and speakers

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CONFERENCE VENUE

Amberger Congress Centrum
 Schießstaetteweg 8
 92224 Amberg



Amberg, the major regional center in northern Bavaria with a stunning location, is easy and quick to reach by all means of transportation. The Amberg Congress Center is located right next to the historic old town, beside the “Kurfuerstenbad” and the city park. Convenient parking is available directly at the ACC in the Kurfuersten underground car park, offering approximately 240 spaces.



VENUE TECHNICAL TOUR SIEMENS

Impulse of Electronics Work Amberg (EWA)
 Heinrich-Hertz-Straße 1, 92224 Amberg