

Bonn, November 24 – 26, 2025



17th Symposium *Sensor Data Fusion: Trends, Solutions, and Applications*

Technical Program

Location: Universitätsclub Bonn e.V., Konviktstr. 9, 53113 Bonn, Germany. www.uniclub-bonn.de

Organisation

Executive Chairs:

Wolfgang Koch, Fraunhofer FKIE and University of Bonn, w.koch@ieee.org;

Felix Govaers, Fraunhofer FKIE, felix.govaers@fkie.fraunhofer.de.

Technical Program Chair:

Martin Herrmann, Hensoldt Sensors, martin.herrmann@hensoldt.net

Technical Program Committee

Jiri AJGL, University of West Bohemia, CZE; Marcus BAUM, University of Göttingen, GER; Ali Bozbulut, ASELSAN A.S., TR; Stefano CORALUPPI, STR, MA, USA; Fred DAUM, Raytheon, MA, USA; Jesus GARCIA, University Carlos III, Madrid, ES; Felix GOVAERS, Fraunhofer FKIE, GER; Sebastian HANDKE, Fraunhofer FKIE, GER; Gustav HENDEBY, Linköping University, SWE; Martin HERRMANN, Hensoldt Sensors GmbH, GER; Patrick HOHER, HTWG Konstanz, GER; Michael HUBNER, AIT Austrian Institute of Technology, AUT; Manon KOK, Delft University of Technology, NED; Bernhard KRACH, Airbus, GER; Jan KREJČÍ, University of West Bohemia, CZE; Gordon LEE, San Diego State University, CA, USA; Martin MICHAELIS, University of the Bundeswehr Munich, GER; Lyudmila MIHAYLOVA, University of Sheffield, UK; Umut ORGUNER, Middle East Technical University, TR; Ivo PUNČOCHÁŘ, University of West Bohemia, CZE; Lauro SNIDARO, University of Udine, IT; Simon STEUERNAGEL, University of Göttingen, GER; Martin ULMKE, Fraunhofer FKIE, GER; Markus WALKER, Karlsruhe Institute of Technology, GER; Chaoqun YANG, Southeast University, CN;

Bonn, November 24 – 26, 2025



Day 1 – Monday November 24th Start of SDF Symposium 2025

12:00 – 12:50	Registration
12:50 – 13:00	Welcome & Opening

Session #1: Advanced Signal Processing

Chair:

	Nursultan Daupayev, Paul Reber, Soeren Hirsch
13:00 – 13:30	<i>State-Based Signal Processing with Kalman Filtering for Energy Resource Efficiency</i>
	Ulrich Engel
13:30 – 14:00	<i>On Space-Time Adaptive Processing with Linear-Phase Constraint</i>
	Cosmin Danisor
14:00 – 14:30	<i>Coherent Processing of Multi-Sensors Data for Detection of Stable Scatterers in SAR Images: A Comparative Analysis</i>

Industry Talk #1:

Chair:

14.30 – 15:00	Felix Opitz, Hensoldt TBD
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Coffee

Bonn, November 24 – 26, 2025



Session #2: Deep Learning for Target Tracking & Data Fusion

Chair:

Fabian Engl, Jürgen Mottok, Michael Burmester

15:30 – 16:00

Analyzing the Importance of Spatio-Temporal Patterns in Eye-Tracking Sensor Data for predicting Usability and User Experience

Martina Brötje, Thomas Beck

16:00 – 16:30

Robust Real-Time Multistatic Sonar Tracking with Missed Detections and Measurement Bias using Gaussian Long Short-Term Memory Networks

Marco Mari, Lauro Snidaro

16:30 – 17:00

Ensemble of KalmanNets for Multi-Target Tracking in Cluttered Environments

Kamil Alp Cinar, Tayyip Soner Tekin, Oguzhan Dik, Ahmet Gunes

17:00 – 17:30

Fall Detection Using UWB Distance Measurements with a Hybrid CNNGRU Models

Icebreaker Reception

19:00

*Sion im Carré
In d. Sürst 1,
53111 Bonn*

Bonn, November 24 – 26, 2025



Day 2 – Tuesday November 25th Keynote Talk

09:00 – 10:30 **Uwe Hanebeck**
TBD

Coffee

Session #3: Grid-based Estimation & Quantum Computing for Data Fusion

Chair:

11:00 – 11:30	Daniel Frisch, Uwe Hanebeck <i>Fokker-Planck Prediction on the Cylindric Manifold using Tensor Decomposition of a Regular Grid</i>
11:30 – 12:00	Norman Bunk, Felix Govaers <i>Digitized Adiabatic Bayesian Update via Quantum Approximate Optimization Algorithm</i>
12:00 – 12:30	Benjamin Rodrigues de Miranda, Sigurd Huber, Tobias Brosch, Johannes Pardey, Johannes Hauff, Gerhard Krieger <i>Quantum Optimised Beam Allocation with a Radar Network for Multiple Target Tracking</i>

Lunch

Session #4: Resource Management & Optimization

Chair:

13:30 – 14:00	Adrian Albert, Peter Stütz <i>Sensor Performance Models-Aided Target Tracking and Classification for Cooperative Airborne Sensor Platforms</i>
14:00 – 14:30	Taruna Tiwari, Christopher Funk, Shuo Li, Benjamin Noack <i>Sensor Placement in a Passive Sensor Network for Scan-Based Ship Localization</i>

Bonn, November 24 – 26, 2025



14:30 – 15:00 Alicja Szwalek, Xingchi Liu, Chenyi Lyu, Alasdair Hunter, Lyudmila Mihaylova
Bayesian Optimisation for Sensor Scheduling and Tracking with Different Acquisition Functions

Coffee

Session #5: Real-World Applications & Case Studies

Chair:

15:30 – 16:00 **Philipp Berthold, Bianca Forkel, Mirko Mählich**
A Multi-Vehicle Dataset with Camera, LiDAR, and Radar Sensors and Scanned 3D Models for Custom Auto-Annotation using RTK-GNSS

16:00 – 16:30 **Philomena Humburg, Martina Brötje, Robert Logiewa, Jana Kerns, Torsten Fiolka, Sven Fuchs**
Automatic Extrinsic Calibration for a Drone Detection System using Cooperative Drones

16:30 – 17:00 **Michael Hubner, Kilian Wohlleben, Thanet Markchom, Jonathan Boyle, Stephan Veigl, Andreas Opitz, Anastasios Gkamaris, Romeo Bratskas**
Enhancing Maritime Situational Awareness through Multimodal Fusion: Insights from a Real-World Experiment

Gala Dinner

17:30 – 17:45 *Awards Ceremony*
17:45 *Gala Dinner with Piano Performance*

Bonn, November 24 – 26, 2025



Day 3 – Wednesday November 26th

Industry Talk #2:

Chair:

09:00 – 09:30

Toni Fetzner, cronn
TBD

Session #6: Estimation Theory & Target Tracking

Chair:

09:30 – 10:00

Jingyi Yu, Tim Pynchynski, Marco Huber

Multi-Domain Causal Discovery and Downstream Applications in Manufacturing Systems

10:00 – 10:30

Simon Steuernagel, Marcus Baum

Decoupled Quadratic Filter for Extended Object Tracking using Multiplicative Noise

10:30 – 11:00

Felix Govaers, Joshua Gehlen

Probability Density Functions from Neural Networks as an Indicator for Data Robustness

Coffee

Session #7: Localization & Direction Finding

Chair:

11:30 – 12:00

Dennis Gallenmüller

An Online Formulation of Direct Position Determination

12:00 – 12:30

Jannik Springer, Marc Oispuu

RF Direction Finding with Radio Frequency System-on-Chip

Lunch

Bonn, November 24 – 26, 2025



Session #8: Multi-Source Data Fusion

Chair:

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| 13:30 – 14:00 | Claudia Malzer, Marcus Baum, Laura Wolf
<i>A Multi-Stage Clustering Framework for Track-to-Track-Association</i> |
| 14:00 – 14:30 | Yifan Zhou, Matthew Bright, John Heap, Andrew Jones, Munir Pirmohamed, Simon Maskell
<i>Signal Detection for Drug Safety Fusing Spontaneous Reporting System and Social Media</i> |
| 14:30 – 15:00 | Philipp Berthold, Martin Herrmann, Dietrich Frnken, Mikro Mhlisch
<i>Multi-Source IMM-Mixture Track Fusion using a Tree Structure</i> |
| 15:00 – 15:30 | Petr Lukes, James Wright
<i>On Time Intervals and Assignments in Multi-target Tracking Evaluation</i> |

End of SDF Symposium 2025