



# AISS 24

Autonomous Inland  
& Short Sea Shipping

## Autonomous Inland and Short Sea Shipping Conference

### AISS 2024

10<sup>th</sup> and 11<sup>th</sup> September 2024

## Conference Program

**Competence Centre for Autonomous Inland and Short Sea  
Shipping**

**Venue:** Niederrheinische Industrie- und Handelskammer  
(Chambers of Commerce) Duisburg-Wesel-Kleve  
Mercatorstrasse 22-24, 47051 Duisburg / Germany,  
<https://www.ihk-niederrhein.de>

**Supported by**



UNIVERSITÄT  
DUISBURG  
ESSEN

*Offen im Denken*



**RWTHAACHEN  
UNIVERSITY**

## Tuesday, 10<sup>th</sup> September 2024

- 13:00 **Welcome and Registration**
- 14:00 **Opening**
- 14:10 **Keynote Lecture:** Fionn Halleman  
**Automation on French inland waterways - an overview of VNF's initiatives**  
Voies Navigables de France, Béthune, France
- 14:50 Patrick Specht<sup>1</sup>, Cyril Alias<sup>2</sup>, Lea Corbeck<sup>2</sup>, Jakob Ovens<sup>1</sup>, Michael Seifert<sup>2</sup>  
**Envisioning the future of autonomous shipping: Introducing consistency-based scenario modelling for strategic foresight**  
<sup>1</sup>Institute of Shipping Economics and Logistics, Bremen, Germany  
<sup>2</sup>Development Centre for Ship Technology and Transport Systems, Duisburg, Germany
- 15:15 Espen Johansen Tangstad  
**Autonomous Ship Developments in Horizon Europe**  
SINTEF Ocean, Norway
- 15:40 **Coffee break**
- 16:10 Dennis Höhn, Matthias Steidel, Christina Tsiroglou  
**Sovereign and secure sharing of information in the maritime domain: An analysis of involved actors and requirements**  
German Aerospace Center, Institute Systems Engineering for Future Mobility, Oldenburg, Germany
- 16:35 Rupert Henn, Stefan Schweig  
**Predictor-Corrector Approach to Path Control for Inland Vessels**  
DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany
- 17:00 Jinhan Kong, Ian Karez, Dongze Wang, Torsten Jeinsch  
**Enhanced Inland Vessel Detection Using CNN-Based Deep Learning and Lidar Technology**  
University of Rostock, Lehrstuhl Regelungstechnik, Rostock, Germany
- 19:00 **Conference Dinner**

## Wednesday, 11<sup>th</sup> September 2024

09:00 **Registration**

09:30 **Opening**

09:35 M. Khalis Mohd Fadil, Ian Karez, Torsten Jeinsch  
**Constructing Waterways Map using a LiDAR-inertial odometry with Incremental Smoothing for Surface Vessel: Considering Waterways related Disturbance**  
University of Rostock, Lehrstuhl Regelungstechnik, Rostock, Germany

10:00 Iulian Filip<sup>1</sup>, Robin Herrmann<sup>2</sup>, Sebastian Gehrig<sup>3</sup>, Thilo Lenhard<sup>3</sup>, Daniel Medina<sup>1</sup>, Markus Gardill<sup>2</sup>, Ralf Ziebold<sup>1</sup>  
**Performance Evaluation of LIDAR and Automotive RADAR for Inland Waterway Navigation and Mapping**  
<sup>1</sup>German Aerospace Center (DLR), Institute of Communications and Navigation, Neustrelitz, Germany; <sup>2</sup>Electronic Systems and Sensors, BTU Cottbus-Senftenberg, Cottbus, Germany; <sup>3</sup>InnoSenT GmbH, Donnersdorf, Germany

10:25 Utku Pazarci, Alexander Puzicha  
**Pose-Graph based MSIS SLAM for Autonomous Vessels**  
TU Dortmund University, Chair for Modelling and Simulation, Dortmund, Germany

10:50 **Coffee break**

11:20 Florian Gschwandtner<sup>1</sup>, Jonathan Specht<sup>1</sup>, Alexander Lutz<sup>1</sup>, Thomas Meurer<sup>2</sup>  
**Collision Avoidance for Inland Navigation Using Black-box-optimization**  
<sup>1</sup>Argonics GmbH, Stuttgart, Germany; <sup>2</sup>Digital Process Engineering Group, Institute for Mechanical Process Engineering and Mechanics, Karlsruhe Institute of Technology, Karlsruhe, Germany

11:45 Paul Lee, Gerasimos Theotokatos, Evangelos Boulougouris  
**Robust Decision-Making for Maritime Autonomous Surface Ships Reactive Collision Avoidance**  
Maritime Safety Research Centre (MSRC), Department of Naval Architecture, Ocean & Marine Engineering, University of Strathclyde, Glasgow, UK

12:10 Olena Shyshova<sup>1</sup>, Pooja Gadhavi<sup>1</sup>, Matthias Tenzer<sup>2</sup>, Foghor Tanshi<sup>3</sup>, Dirk Söffker<sup>1</sup>  
**Preparation for takeover: A discussion about limits for take over in highly automated systems using the experimental example of takeover situations on highly automated inland waterway vessels**  
<sup>1</sup>University of Duisburg-Essen, Chair of Dynamics and Control, Duisburg, Germany; <sup>2</sup>DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany; <sup>3</sup>University of Duisburg-Essen, Dept. of Electrical/Electronic Engineering, Duisburg, Germany

## Wednesday, 11<sup>th</sup> September 2024 (cont.)

- 12:35 Thomas Jan Hornig, Markus Mizael Moser, Tim Reuscher  
**Three-Stage Predictive Warning System for Human Takeover of Automated Inland Vessels**  
RWTH Aachen University, Chair of Automatic Control, Aachen, Germany
- 13:00 **Lunch break**
- 14:00 Nikolas Schaal, Ramon Sieber  
**Optimal speed as a basis for fuel-efficient autonomy**  
Shiptec AG, Lucerne, Switzerland
- 14:25 Alexander Puzicha  
**Automatic emission and detection of sound signals for maritime navigation**  
TU Dortmund University, Chair for Modelling and Simulation, Dortmund, Germany
- 14:50 Marvin Glomsda, Eva Spachtholz, Frederic Etienne Kracht  
**Risk Assessment for Inland Vessels with Various Levels of Automation**  
University of Duisburg-Essen, Chair of Mechatronics, Duisburg, Germany
- 15:15 Youjun Yang, Bettar el Moctar  
**A Fourier-based mathematical model for ship-ship interactions during overtaking for application in manoeuvring**  
University of Duisburg-Essen, Institute for Sustainable and Autonomous Maritime Systems, Duisburg, Germany
- 15:40 **Closing**