



AISS 23

Autonomous Inland
& Short Sea Shipping

Autonomous Inland and Short Sea Shipping Conference

AISS 2023

5th and 6th September 2023

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>

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Tuesday, 5th September 2023

- 12:00 **Welcome and Registration**
- 13:00 **Opening**
- 13:20 **Keynote Lecture:** Janis Bargsten
Course to autonomy: Commercialising Remote Control Technology and Beyond
- 14:00 Lukas Hösch, Daniel Medina
Information Platform Concept for HD Inland Waterway Mapping
Deutsches Zentrum für Luft- und Raumfahrt, Institut für Kommunikation und Navigation (Abteilung Nautische Systeme), Germany
- 14:25 Keval Harshadkumar Dholu, David Damm, Manzoureh Aghabeig, Christoph Kowalski, Axel Heßler
Resilient Vessel Perception: Progress and Open Question
TITUS Research GmbH, Germany
- 14:50 Ronald Raulefs, Markus Wirsing
Autonomous Waypoint Sailing with an Alternative PNT System: Practical Experience with VDES R-Mode
Deutsches Zentrum für Luft- und Raumfahrt, Germany
- 15:15 **Coffee break**
- 15:45 Stefan Krause¹, Denys Mateienko¹, Odd Erik Mørkrid², Espen Tangstad², Harilaos Psaraffis³, Nelson Coelho⁴
Development of an advanced, efficient and green intermodal system with autonomous inland and short sea shipping – AEGIS
¹Institut für Strukturleichtbau und Energieeffizienz gGmbH, Germany; ²SINTEF Ocean, Norway; ³Technical University of Denmark; ⁴Centre for Blue Governance, Denmark
- 16:10 Jürgen Alberding
City Logistics on the Spree-Oder Waterway
Alberding GmbH, Wildau, Germany
- 16:35 **Visit of the Research Lab for Innovative Port Technologies – HaFoLa** – located at the Development Centre for Ship Technology and Transport Systems
Including a foot walk to the DST and afterwards to the dinner location
- 19:00 Conference Dinner

Wednesday, 6th September 2023

08:30 **Registration**

09:00 **Opening**

09:05 A. Bilal Ozcan, Ismail Bayezit, Omer Kemal Kinaci
Model Based Design and Optimal Control of Crude Carrier in Narrow Waterways considering Sea-Induced Disturbances
Istanbul Technical University, Turkiye

09:30 Markus Mizaël Moser, Rinat Prezdneyakov, David Stenger, Tim Reuscher, Heike Vallery
Towards Model Predictive Control for Inland Ferries and Vessels
RWTH Aachen University, Germany

09:55 Nalan Erol Kum¹, Omer Kemal Kinaci²
Maneuvering Control Analysis of a Tugboat by Integrating Sea-Trial Test Data
¹Uzmar Shipyard, Turkiye; ²Istanbul Technical University, Turkiye

10:20 **Coffee break**

10:50 Florian Gschwandtner^{1,2}, Alexander Lutz¹, Thomas Meurer²
Prediction of inland vessel states using typical routes and a multiple hypothesis approach
¹Argonics GmbH, Germany; ²KIT MVM DPE, Germany

11:15 Saad Sagheer¹, Kathrin Donandt², Alexander Bernath³, Uwe Ehret⁴
Hybrid Transformer-CNN model with spatial awareness for inland vessel trajectory prediction
¹Federal Waterways Engineering and Research Institute, BAW, Germany; ²University of Duisburg-Essen, Chair of Dynamics and Control, Germany; ³Simutence, Germany; ⁴KIT, Germany

11:40 Maximilian Jarofka¹, Jan Oberhagemann², Frederic Etienne Kracht¹, Dieter Schramm¹
Autonomous Inland Vessels: Simulation, Demonstration, and Advancements in Automated Navigation of Inland Ships – Part 1
¹University of Duisburg-Essen, Germany; ²DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany

12:05 Maximilian Jarofka¹, Jan Oberhagemann², Frederic Etienne Kracht¹, Dieter Schramm¹
Autonomous Inland Vessels: Simulation, Demonstration, and Advancements in Automated Navigation of Inland Ships – Part 2
¹University of Duisburg-Essen, Germany; ²DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany

12:30 **Lunch break**

Wednesday, 6th September 2023 (cont.)

- 13:30 Patrick Potgraven, Colin Guiking
Sharing intentions promises inland navigation to become more safe and efficient
Ministry of Infrastructure and Watermanagement, The Netherlands
- 13:55 Dhaneswara Al Amien, Terje Andreas Mathisen, Roberto Rivas Hermann
An Agent-Based Modelling Approach to Policy, Market, and Technology Effects on Autonomous Shipping Adoption Rate by Inland Shipowners
Nord University, Norway
- 14:20 Marcel Zydeck, Dirk Söffker
Machine learning-based prediction of the free fluid surface motion within a partially filled LNG container under consideration of vessel-based external roll excitations
University of Duisburg-Essen, Chair of Dynamics and Control, Duisburg, Germany
- 14:45 **Coffee break**
- 15:15 Abderahman Bejaoui¹, Waldemar Boschmann¹, Kathrin Donandt², Olena Shyshova¹, Navreet Singh Thind¹, Dirk Söffker¹
Addressing safety and reliability in autonomous inland shipping
¹University of Duisburg-Essen, Chair of Dynamics and Control, Germany; ²Federal Waterways Engineering and Research Institute, Germany
- 15:40 Thomas Kerkmann, Mohan Illuri, Jan Oberhagemann, Igor Bačkalov
Inland Waterway Codes: Regulatory Obstacles and Opportunities for Autonomous Shipping
DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany
- 16:05 Björn Wierczoch, Jörn Linde, Jens Neugebauer, Ould el Moctar
Consideration of Accident Data of Conventional Inland Ships for the Development of Remotely Operated and Highly Automated Ships
University of Duisburg-Essen, Institute for Ship Technology, Ocean Engineering and Transport Systems, Germany
- 16:30 **Closing**