AISS 21
Autonomous Inland
& Short Sea Shipping

Autonomous Inland and Short Sea Shipping Conference

AISS 2021

2nd and 3rd November 2021

Conference Program

Competence Centre for Autonomous Inland and Short Sea Shipping

Supported by
Chambers of Commerce in the Ruhr Region

Ruhr IHK Industrie- und Handelskammern im Ruhrgebiet

UNIVERSITÄT DUISBURG ESSEN
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DST

RWTH AACHEN UNIVERSITY

Tuesday, 2nd November 2021

13:00 **Welcome and Registration**

14:00 **Opening**

14:20 **Keynote Lecture:** Prof. Dr.-Ing. Dr. h.c. Dieter Schramm
Assisted and Automated Driving on Land and Waterways
University of Duisburg-Essen, Chair of Mechatronics, Duisburg, Germany

15:00 Stefan Krause[1], Lisa Wurzler[1], Ørnulf Jan Rødseth[2], Odd Erik Mørkrid[2], Kay Fjørtoft[2], Harilaos N. Psaraftis[3]
Development of an Advanced, Efficient and Green Intermodal System with Autonomous Inland and Short Sea Shipping – AEGIS
[1]Institut für Strukturleichtbau und Energieeffizienz, Germany; [2]SINTEF Ocean, Trondheim, Norway; [3]Technical University of Denmark

15:25 Cyril Alias[1]; Tobias Bruckmann[2], Frédéric Etienne Kracht[2], Markus Nieradzik[2], Jonas zum Felde[1], Bettar Ould El Moctar[1], Dieter Schramm[2]
HaFoLa – Addressing the Research Needs in Port Logistics with Appropriate Research Infrastructure
[1]DST – Development Centre for Ship Technology and Transport Systems, Department of Logistics and Transportation, Duisburg, Germany; [2]University of Duisburg-Essen, Chair of Mechatronics, Duisburg, Germany

15:50 **Coffee break**

16:20 Victor Bolbot[1], Gerasimos Theotokatos[1], Lars Andreas Wennersberg[2], Dag Atle Nesheim[2], Jérôme Faivre[3]
Novel Assurance Framework for Autonomous Ships
[1]Maritime Safety Research Centre, Department of Naval Architecture, Ocean and Marine Engineering, University of Strathclyde, Glasgow, UK; [2]SINTEF Ocean, Trondheim, Norway; [3]BUREAU VERITAS Marine & Offshore, Paris, France

16:45 Ørnulf Jan Rødseth, Lars Andreas Lien Wennersberg, Håvard Nordahl
Defining Levels of Autonomy for Ships and Inland Vessels
SINTEF Ocean, Trondheim, Norway

17:10 **tba**

19:00 **Conference Dinner**

Wednesday, 3rd November 2021

08:00 **Registration**

08:30 **Opening**

08:35 Maximilian Jarofka, Philipp Maximilian Sieberg, Christian Hürten, Tim Benedens, Ricarda Peters, Frédéric Etienne Kracht, Dieter Schramm
From Real to Virtual Environment – Integration of Publicly Available Geodata into a Simulation Environment
University of Duisburg-Essen, Chair of Mechatronics, Duisburg, Germany

09:00 Jonas Mahler, Jan Oberhagemann
Software Architecture for Real and Virtual Sensors in GNC Systems
DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany

09:25 Marvin Huang, Martin Kosch, Jan-Jöran Gehrt, René Zweigel, Dirk Abel
Application of Recent GNC Approaches for Automation in Shipping
Institute of Automatic Control at RWTH Aachen University, Aachen, Germany

09:50 **tba**

10:15 **Coffee break**

10:45 Aparna Nagarajan, Jan Mentjes, Sebastian Feuerstack
SmartKai: LIDAR Based Real-Time Detection and Tracking of Moving Objects in Maritime Environments
OFFIS Institute for Information Technology, Oldenburg, Germany

11:10 Waldemar Boschmann, Dirk Söffker
Increasing Detection Performance using Redundant Object Detection Approaches
University of Duisburg-Essen, Chair of Dynamics and Control, Duisburg, Germany

11:35 R. Raulefs, M. Ulmschneider, M. Wirsing
Terrestrial VDE on the German Inland Waterways
Institute of Communications and Navigation, German Aerospace Center (DLR), Oberpfaffenhofen, Germany

12:00 Ralf Ziebold, Xiangdong An, Christoph Lass
Current Status of Precise Point Positioning Algorithm Development for Highly Automated Inland Vessel Navigation
DLR, Institute of Communications and Navigation, Neustrelitz, Germany

12:25 **Lunch break**

Wednesday, 3rd November 2021 (cont.)

13:55 Hendrik Dankowski
CAPTN Förde Areal – A Smart and Clean Technology Platform for the Testing and Development of Future Autonomous Passenger Ferries
University of Applied Science Kiel, Kiel, Germany

14:20 Alexander Lutz[1], Axel Lachmeyer[1], Sebastian Wagner[2]
NOVIMAR Vessel Train Full-Scale Trial: Results and Conclusions
[1]Argonics GmbH, Stuttgart, Germany; [2]in – innovative navigation GmbH, Kornwestheim, Germany

14:45 Peter Regier, Matthias Waßenberg, Jan Oberhagemann
ELLA – A Platform for Automation of Harbor Maneuvers
DST – Development Centre for Ship Technology and Transport Systems, Duisburg, Germany

15:10 **tba**

15:35 **Coffee break**

16:05 Abderahman Bejaoui, Fateme Bakhshande, Dirk Söffker
Modeling and Formalization of Human Operator Behavior for Mobile Systems and Inland Vessels Using the Situation-Operator-Modeling Approach
University of Duisburg-Essen, Chair of Dynamics and Control, Duisburg, Germany

16:30 Tim Feierfeil, Christian Schanz, Klemens Kauppert
Management of Autonomous and Mixed Waterborne Traffic by Cascading Microscopic Traffic Simulation – The Project "mikroVon"
ingenieurbüro kauppert, Nebeniusstraße 34, Karlsruhe, Germany

16:55 Navreet Singh-Thind, Mark Spiller, Dirk Söffker
Data-Driven Prediction of Inland Vessel Trajectories
University of Duisburg-Essen, Chair of Dynamics and Control, Duisburg, Germany

17:20 Kathrin Donandt[1,2], Dirk Söffker[2]
Deep Learning-Based Vessels Driving Behavior Prediction in Inland Navigation
[1]German Federal Waterways Engineering and Research Institute, Karlsruhe, Germany; [2]University of Duisburg-Essen, Chair of Dynamics and Control, Duisburg, Germany

17:45 **Closing**