

COMMITTEES

Standing Committee

- Prof. Mehmet Atlar (University of Strathclyde, UK)
- Prof. Sander Çalışal (UBC, Canada and Piri Reis University)
- Prof. Atilla İncecik (University of Strathclyde, UK)
- Assoc.Prof. Barbaros Okan (ITU, Türkiye)

Technical Committee

- Prof. Zaojian Zou (SJTU, China)
- Prof. Stephen Turnock (University of Southampton, UK)
- Prof. Zaili Yang (LJMU, UK)
- Prof. Ömer Kemal Kınacı (ITU, Türkiye)
- Prof. Tahsin Tezdoğan (University of Southampton, UK)
- Dr. Huanhuan Li (University of Southampton, UK)
- Dr. Bas De Kruif (MARIN, Netherlands)

Local Organizing Committee

- Assoc.Prof. G.Tansel Tayyar (Chair)
- Assoc.Prof. Erdem Üçer
- M.Sc. Feyza Ertarhanacı (Secretary)
- M.Sc. Selahattin Özsayan
- M.Sc. Burak Güngüder
- M.Sc. Berkay Başarintürk

Prof. A. Yücel ODABAŞI (1945-2009)

Professor Odabaşı, a graduate of ITU (1967), earned his Ph.D. degree from the same university in 1971. Following his Ph.D., he joined Strathclyde University where his work on the application of Lyapunov's theory to ship stability gained him a well-deserved international reputation which was acknowledged by STAB Award in 2012 post mortem. In 1974 he joined BSRA where he worked on every field of ship hydrodynamics and made significant contributions, in particular in the field of wake scaling. 1988 he moved to USA to set up BMT International as its first director and CEO. He returned to ITU-Turkey in 1991 where he inspired a generation of young academicians while at the same time succeeding to lead Turkish Lloyd to worldwide recognition. He was awarded the gold medal of NECIES-UK and numerous awards from NAVSEA, SNAME and BSRA.

Colloquium Sponsors



İTÜ



A. Yücel ODABAŞI Colloquium Series

5th International Meeting

Advances in Marine Robotics and Autonomous Systems

18-19 December 2025

Istanbul Technical University
Faculty of Naval Architecture and
Ocean Engineering



Final Programme

18 December 2025, Thursday

08.30-09.00	Registration & Welcome Coffee
09.00-09.15	Opening & Welcome Address
09.15-09.45	Prof. Zaojian Zou <u>Keynote Address 1</u> : Topic TBA
	Session: Data-Driven Modelling & Reviews
09.45-10.15	Cihad Celik, Huanhuan Li, Lu Zou, Musa Bashir, Zaili Yang : Data-Driven Modelling and Prediction of Ship Manoeuvring Motions with Dynamic Bayesian Networks
10.15-10.45	Nadir Abbas, Li-Ying Hao, Jamshed Iqbal, Syed Awais Ali Shah : A Review of Model Predictive Control and Reinforcement Learning Integration Framework for UAV-Based Offshore Inspection and Marine Monitoring
10.45-11.00	Coffee Break
	Session: Maneuvering & Risk
11.00-11.30	Won-Jun Yoo, Kwang-Jun Paik, Mu-Yeong Seo : UKF-Enhanced Probabilistic Ship Domain for Real-Time Collision Risk and Damage Assessment
11.30-12.00	Bas de Kruif, Bulent Duz, Victor Ferrari : Man overboard manoeuvre in waves; controlling the Williamson turn
12.00-12.30	Afşin Baran Bayezit, Roberto Tonelli, Victor Ferrari, Ömer Kemal Kınacı, Bülent Düz : Limitations of Linear Manoeuvring Models at High Rudder Angles: A Case Study on Nomoto Models
12.30-14.00	Lunch (Open Buffet)
14.00-14.30	Prof. Stephen Turnock <u>Keynote Address 2</u> : Topic TBA

18 December 2025 - Continued

	Session: Autonomy & Planning
14.30-15.00	Ahmet Gunes , Real-Time Penetration Path-planning for AUVs Using Deep Reinforcement Learning
15.00-15.30	Ozan Kaya, Şeniz Ertuğrul, Ege Yarenci : A Generic Algorithm for Target Following with Dynamic Obstacle Avoidance in Unstructured Environments
15.30-16.00	Cansel Yalçınkaya, Ebru Koçdor, Efe Gürz Çakıroğlu : Enhancing Mission Autonomy of Autonomous Surface Vehicles in Time-Critical Naval Operations
16.00-16.30	Coffee Break
16.30-17.00	Gökhan Tansel Tayyar, Ferhan Büyükçolak : Curvature-Based Vessel Motion Modeling: A Kinematic Approach for Path Planning and Predictive
	Session: Autonomy & Control
17.00-17.30	Anıl Aslan, Ömer Kemal Kınacı : Improved Feedforward Speed Controller for Autonomous Underwater Vehicles
	Session: Hydrodynamics & Simulation
17.30-18.00	Fatih Mehmet Kale, Mesut Taner, Naz Yılmaz, Kadri Turgut Gürsel : Free Surface Effects on the Hydrodynamic Efficiency of a Bio-Inspired Underwater Vehicle
19.00	Gala Dinner

19 December 2025, Friday

08.30-09.00	Welcome Coffee
09.00-09.30	Prof. Tahsin Tezdoğan <u>Keynote Address 3</u> : Topic TBA
	Session: Hydrodynamics & Simulation
09.30-10.00	Dong Ho Yoon, Joonmo Choung, Hyeongsu Lee, Hojin Yoon, Moonju Jeong, Seojun Oh, Jihye Byeon, Tri Hoang Nguyen : Autonomous Seagoing Simulations of an Icebreaker in Ice-Prone Area Considering Fully Coupled Ship Hydrodynamics Using HydroQus
10.00-10.30	Oğuzhan Kirikbaş, Şakir Bal : Calculation of the maneuvering derivatives of a generic SSK class submarine with CFD
10.30-11.00	Coffee Break
	Session: Operations, Training & Impact
11.00-11.30	Bilal Metin Altınöz, Yusuf Kaya, Samet Nazmi Şahin : Technical Difficulties and Approaches to Solutions in the Development and Operation of Unmanned Surface Vehicles (USVs)
11.30-12.00	Çağlar Karatuğ, Eddie Blanco-Davis, Xinjian Wang, Onur Yüksel, Yasin Arslanoğlu, Jin Wang : Evaluating the Impacts of Emerging Smart Technologies on Maritime Education and Training
12.00-12.30	Nikhil Raja, Stephen Turnock : Modelling the Impact of Autonomous Marine Vehicles on Underwater Cable Operations
12.30-14.00	Lunch

19 December 2025 - Continued

Session: Digital Twins & Smart Methods

14.00-14.30 **Ceren Nisanur Özbilge, Hikmet Dinçer:** Digital Twins in Naval and Unmanned Maritime Systems: Operational Potentials and Gaps

14.30-15.00 **Huanhuan Li, Jincheng Gong, Alan J. Murphy, Zaili Yang:** Applications of Ship Digital Twins in Maritime Transport: A systematic review

15.00-15.30 **Xinyu Zhang, Chenxing Jiang, Bingxin Liu, Wenqiang Guo:** Leveraging Large Language Models to Construct Dynamic Scenarios from Accident Reports for Autonomous Navigation Testing

15.30-16.00 **Coffee Break**

Session: Localization & Sensing

16.00-16.30 **Bilal Metin Altınöz, Yusuf Kaya, Samet Nazmi Şahin:** Multi-Sensor Fusion-Based Localization and Mission Continuity for Autonomous Marine Platforms in GPS-Denied Environments

16.30-17.00 **Bilal Metin Altınöz, Yusuf Kaya, Samet Nazmi Şahin:** Real-Time Depth Regulation of Tethered Sensors in Unmanned Marine Systems

17.00-17.30 **Bilal Metin Altınöz, Yusuf Kaya, Samet Nazmi Şahin:** Sensor Placement and Field of View Optimization in Autonomous Marine Platforms

17.30 **Adjourn**

CONTACT INFORMATION

Res. Assist. Feyza Ertarhanacı, Colloquium

Secretariat

Istanbul Technical University

Faculty of Naval Architecture & Ocean

Engineering, Maslak, 34469 Istanbul, TURKEY

Tel : +90 212 285 78 74

Fax : +90 212 285 64 54

e-mail : ayocol@itu.edu.tr

Web : <http://www.ayocol.itu.edu.tr>

REGISTRATION

Colloquium is open to all interested researchers and academicians.

All those attending the Colloquium must register via <http://www.ayocol.itu.edu.tr> using the link **EasyChair** or via e-mail: **ayocol@itu.edu.tr** Participants registered will be provided Colloquium Proceedings. The papers will be presented in person.

VENUE

Colloquium will be held on 18 – 19 December 2025 at Istanbul Technical University (ITU), Ayazaga Campus, Maslak, Istanbul, Turkey.