

Program of the Conference ICOS 2025

50, Svetlanskaya Street, Vladivostok

8 October 2025

9.00 - 10.00 Registration of conference participants in Red Hall of Presidium FEB RAS (1st floor)

10.00 - 10.10 Opening of the International Conference on Ocean Study 2025.

Plenary reports

10.10 - 10.40 Sergey Prants, Corresponding Member of the Russian Academy of Sciences, DrSc, Head of the Department of Ocean and Atmospheric Physics POI FEB RAS "**Lagrangian oceanography: from dynamical systems theory to ecological issues**"

10.40 - 11.00 Alexandr Scherbatyuk, Corresponding Member of the Russian Academy of Sciences, DrSc, Leading Researcher IACP FEB RAS **Modern Systems and Methods of Navigation Support for Autonomous Underwater Vehicles**

11.00 - 11.20 Alexander Konoplin, PhD, director of IMTP FEB RAS "**Method for Correcting the Position, Orientation and Velocity of End-Effector of Underwater Multilink Manipulators**"

Section 1, 2 Underwater Robotics and Systems; Unmanned marine vehicles and systems

(Section Chairman PhD Alexey Filozhenko)

1. (11.30) Pavel Salyuk, Nadezhda Lipinskaya, Igor Steepochkin, Maxim Gorbov, Iulianna Shambarova, Evgeny Ivanchenko **Temporal Variability of Vertical Profiles of Chlorophyll-a and Dissolved Organic Matter Concentrations in the Water Column Obtained with the Autonomous Moored Profiling Probe "Winchi"** (POI FEB RAS)

2. (11.45) Mikhail Belousov, Vladimir Filaretov, Igor Gornostaev **Development of a Calibration Method for Underwater Video Cameras Using a Multi-Link Manipulator** (IMTP FEB RAS, IACP FEB RAS, Nevelkoy Marine State University)

3. (12.00) Vladimir Gerasimov, Anton Komlev, Alexey Filozhenko **A New Method to Control Autonomous Voltage Inverters in the Power Supply Systems of Underwater Vehicles** (IMTP FEB RAS)

4. (12.15) Konstantin Shilin, Alexander Pavin **Analysis of Envelope Extraction Algorithms for LFM Signals in Side-Scan Sonar Data** (IMTP FEB RAS)

5. (12.30) Vladimir Kostenko, Platon Pryazhennikov **Methodology for the Development and Design of the AUV Propulsion System** (IMTP FEB RAS)

6. (12.45) Roman Vasilenko, Nikita Dats **Approach to Using AUVs Equipped with Multi-link Manipulators for Underwater Lifting Tasks** (IMTP FEB RAS)

Break until 14.00

1. (14.00) Nikita Krasavin, Alexander Konoplin, Ekaterina Kalenteva **Modification of the Inverse Dynamics Algorithm for an Underwater Multilink Manipulator** (IMTP FEB RAS)

2. (14.15) Vladimir Kostenko, Irina Mokeeva **Estimation of Steady-State Speed of AUV Motion Based on Rotation Frequency of Cruise Thrusters** (IMTP FEB RAS)

3. (14.30) Andrey Pugachev, Alexey Borovik, Konstantin Shilin **Event Processor Module for MMT-3500** (IMTP FEB RAS)

4. (14.45) Hung Van Hung, Hung Nguyen Van, Hai Duong Nguyen Duc, Dang Bui Hai, Ninh Pham Quang, Ninh Pham Quang **Intelligent YOLOv11 Multi-Sensor Image Analysis for Maritime Search and Rescue on Unmanned Surface Vehicles (Vietnam Maritime University)**

5. (15.00) Valeriy Knyazhev, Vladimir Loshchenkov **Using Reverse Electrodialysis to Produce Hydrogen** (IMTP FEB RAS)

6. (15.15) Anna Bykanova, Jurii Matvienko, Vladimir Kostenko, Andrey Medvedev **Calculating Method of the Parameters of Marching Propulsions and the Battery of the Command AUV for the Complex of the Noise Field Operational Monitoring** (IMTP FEB RAS)

7. (15.30) Valeriy Knyazhev, Vladimir Loshchenkov **Power Supply for AUV Charging Docking Stations** (IMTP FEB RAS)

Самые актуальные научно-практические и технические статьи о подводных средствах и методах исследования Мирового океана в журнале "**Подводные исследования и робототехника**" - <http://imtp-journal.ru>
(твёрдый переплет, 4 выпуска в год, УБС 3, ВАК K2 по специальностям 1.3.7, 2.2.4, 2.2.11, 2.3.1)

Coffee break

8. (16.00) Aleksandr Yurmanov, Roman Vasilenko, Maxim Panchuk **Algorithm of Data Generation for Transmission to the Operator During Manipulation Operations with a Limited-Bandwidth Communication Channel** (IMTP FEB RAS)
9. (16.15) Aleksandr Yurmanov, Alexander Konoplin, Denis Kopylov **Development of a Coordinated Control Algorithm for a Carrier Ship and an AUV Considering the Characteristics of the Underwater Acoustic Communication System** (IMTP FEB RAS)
10. (16.30) Sergey Pereselkov, Yuriy Matvienko, Venedikt Kuz'kin, Sergey Tkachenko **Experimental Results of Autonomous Underwater Vehicle 2D-Hologram by a Vector Receiver** (Voronezh State University)
11. (16.45) Sergey Pereselkov, Venedikt Kuz'kin, Vladimir Bashkarev, Alexey Pereselkov **Analysis of the Angular Distribution of Noise-Emission 2D Hologram of Underwater Vehicle** (Voronezh State University)
12. (17.00) Andrey Pugachev, Alexey Borovik, Konstantin Shilin **Graphical Interface of an Intelligent Support System for the AUV Operator's Activities** (IMTP FEB RAS)

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Section 3,4 Deep Ocean Research, Oceanography and Marine Environment (Section Chairman Dr.Sc. Alexander Rodionov)

1. (10.00) Zhanna Tskhay, Viktor Filatov **Interannual Dynamics of Thermal Conditions in the Kuril Islands Region And Changes in Sardine And Saury Aggregation Site Formation** (Sakhalin branch of "VNIRO")
2. (10.15) Sergey Kasatkin, Nadezhda Zlobina, **Features of Noise Direction Finding in Shallow Water in the Low-frequency Range** (IMTP FEB RAS, IACP FEB RAS)
3. (10.30) Sergey Kasatkin, Nadezhda Zlobina, Valentin Ryzhikh **Study of the Glider's Own Noise Emission** (IMTP FEB RAS, Far Eastern Federal University)
4. (10.45) Georgiy Kosarev **Using Sonar Equipment Developed by the Institute of Marine Technology Problems Far East Branch Russian Academy of Sciences to Search for Methane Gas Outlets** (IMTP FEB RAS)
5. (11.00) Ilya Kopyshov, Egor Kozlov **Nonlinear Internal Waves in the Kara Gates Strait Through Integrated Multisensor Observationson** (Marine Hydrophysical Institute)

Coffee break

Section 5 Complex Mathematical Problems of Ocean Monitoring and Modeling (Section Chairman PhD Eduard Mursalimov)

1. (11.30) Sergey Fadyushin, Alexander Lentarev, Elena Vereschagina, Yuliya Stegostenko, Alexander Tretyak, Sergey Pashin **Mathematical Modeling of the Trajectory of Fish Aggregations in Zones of Dynamics of Hydrological Element Isolines** (Far Eastern Federal University)
2. (11.45) Sergey Kasatkin, Nadezhda Zlobina **Physical Principles of Implementing Increased Noise Immunity of a Combined Receiver Based on Marine Experiment Data** (IMTP FEB RAS)
3. (12.00) Elizaveta Litunenko, Nikolai Kolesov, Alexander Gruzlikov, Viktor Tiulnikov **Algorithm for Joint Behavior of a Group of Autonomous Unmanned Vehicles During Area Survey** (State Research Center of the Russian Federation – Concern CSRI Elektropribor JSC)
4. (12.15) Filipp Belchenko, Ivan Ermolov, Georgij Nagajcev, Pavel Ostrikov, Artem Sukhanov **Vusial Surveillance Methods for Fishery School Search by UAVs** (Institute for Problems in Mechanics of the RAS)
5. (12.30) Andrey Kurkin, Oksana Kurkina, Igor Yaroshchuk, Aleksandra Kosheleva **Statistical Analysis of Shear Stratified Flows on the Sea of Japan Shelf (based on in-situ measurements in October 2022)** (Nizhny Novgorod State Technical University n.a. R.E. Alekseev, POI FEB RAS)

Break until 14.00

Section 5 Complex Mathematical Problems of Ocean Monitoring and Modeling

(Section Chairman PhD Eduard Mursalimov)

1. (14.00) Aleksandr Rodionov, Denis Kuzin, Dmitry Zinchenko, Oleg Mikhailenko **Neural Network-Based Synthesis of Pseudorandom Sequences for Synchronization and Data Transmission in Hydroacoustic Communication Systems** (IMTP FEB RAS, Far Eastern Federal University)
2. (14.15) Irina Kostenko, Andrey Zaytsev **Analysis of Long Waves from Submarine Landslides on Bathymetry with Different Bottom Slopes** (Special Research Bureau for Automation of Marine Researches Far East Branch Russian Academy of Sciences)
3. (14.30) Igor Kozlov **Retrieving Amplitudes of Internal Solitary Waves in the Arctic Ocean from Sequential Satellite Observations** (Marine Hydrophysical Institute of RAS)
4. (14.45) Natalia Zornina **Fatigue Strenght Characteristics Prediction of Structural Elements in Marine Robotic Systems** (LLC Russian Marine Team)
5. (15.00) Andrey Maevskiy, I. Pechaiko, M. Alekseev **Autonomous System For The Marine Robotics Path Planning Under Changing Hydro-Meteorological Environmental Conditions** (JSC Oceanos)

Coffe break

Section 6 Navigation and Motion Control

(Section Chairman PhD Fedor Dubrovin)

1. (15.30) Antonina Shupikova, Valery Bobkov, Alexander Pavin, Alexander Inzartsev **Survey of Underwater Pipelines by an Autonomous Unmanned Vehicle Using Stereo Camera-Based Recognition of Characteristic Technological Elements** (IACP FEB RAS, IMTP FEB RAS)
2. (15.45) Olga Belova, Dmitry Gryazin **Metrological Support of Measurements at the Present Stage and its Features in Measuring Hydrophysical Quantities** (State Research Center of the Russian Federation – Concern CSRI Elektropribor JSC)
3. (16.00) Alexandr Scherbatyuk **About the Method of Navigation Support for the AUV Group, Which Includes AUV with High-precision Navigation Tools** (IACP FEB RAS)
4. (16.15) Dmitry Yukhimets **Method for Synthesizing a System for Adaptive Forming a Program Signal of the AUV Pitch Angle When It Is Moved in a Vertical Plane** (IACP FEB RAS)
5. (16.30) Alexander Gruzlikov, Vladislav Karaulov **Coordinate and Motion Parameter Estimation for an AUV Based on Passive Sensor Data** (State Research Center of the Russian Federation – Concern CSRI Elektropribor JSC)
6. (16.45) Ekaterina Gavrilina, Anna Kurashina, Marat Agapov, Nikita Vintonyak, Aleksey Borgdanov, Nikolay Stasenok **The Features of the Design and Development of the Navigation System for the Manned Submersible Vehicle “Jason”**; (National Research Centre “Kurchatov Institute”)

17.00 – 18.00 Closing of the conference