

**2020 IEEE/SICE
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(SII2020)**

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Special Session on

“System Integration for Ocean Environment”

organized by

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Abstract of proposed special session:

Oceans covers about 70% of Earth surface and have abundant resources, so various ocean developments are underway. In addition, changes in the ocean environment in recent years may have a significant impact on the ecosystem, and many investigations on the environment and ecology of marine organisms are being conducted by human divers. Since the ocean is an extreme environment for humans, it is necessary that research and development of underwater robots for capable of measuring ocean environment and various operations, construction of environmental measurement methods, and so on.

In this SS, we would like to discuss system integration with respect to ocean environment, such as underwater robot, ocean measurement and communication.

Brief description of the area of interest with special focus on why we should believe this is an interesting and significant topic?

In spite of the desirability of ocean development, there are very few underwater robots in practical use other than underwater vehicles such as UAV. Regarding ocean environment measurements, for example, coral reefs play an important role in maintaining ecosystems of marine organisms, so it is important to investigate coral individuals and conditions and to measure the environment around corals. However, most of the investigation and measurement are done by human divers. Therefore, topics related to system integration such as underwater robots that

realize environmental measurements and various tasks are important. It is also meaningful to discuss such topics in Hawaii surrounded by the ocean.

Topics of interest include, but are not limited to:

Underwater robot, Ocean measurement, Underwater communication, Ocean vehicle, UVMS

List of potential paper titles, authors, reviewers and their respective affiliations:

[Paper titles and authors]

- (1) "Obstacle Detection System for Night Navigation", Takumi Nishina, Etsuro Shimizu (Tokyo University of Marine Science and Technology, Japan)
- (2) "Development of underwater simulator for reconnaissance tasks by utilizing remotely operated robot", K. Suzuki, K. Kawabata (Japan Atomic Energy Agency, Japan)
- (3) "Performance comparison of control methods using a dual-arm underwater robot -Computed torque based control and resolved acceleration control for UVMS-", Shinichi Sagara (Kyushu Institute of Technology, Japan), Radzi Ambar (University Tun Hussein Onn Malaysia, Malaysia)
- (4) "Development of Measurement Device for Soft Materials Aiming at Deep-Sea Applications", Norimitsu Sakagami (Tokai University, Japan), Natsuki Nose, Itaru Imanishi, Sadao Kawamura (Ritsumeikan University, Japan)
- (5) "Numerical and Experimental Testing of Underwater Gripper with Adjustable Stiffness Joints", Norimitsu Sakagami, Keita Takeuchi, Koichi Koganezawa (Tokai University, Japan)
- (6) TBD, Takahiro Wada (Ritsumeikan University, Japan)

[Reviewers]

Yuya Nishida (Kyushu Institute of Technology, Japan)
Tsuyoshi Suzuki (Tokyo Denki University, Japan)
Tasuku Miyoshi (Iwate University, Japan)
Fumiaki Takemura (National Institute of Technology, Okinawa College, Japan)
Satoru Takahashi (Kagawa University, Japan)
Mizuho Shibata (Kindai University, Japan)
Norimitsu Sakagami (Tokai University, Japan)
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Submissions Procedure: All the instructions for paper submission are included in the conference website <https://sice-si.org/conf/SII2020/papersubmission.html>.