Swarm Perception and Cooperation Control of Marine Unmanned Systems

CALL FOR PAPERS

Marine unmanned systems refer to a general term for various types of air/surface/underwater unmanned platforms. They have the autonomous navigation capabilities, which can accomplish different tasks such as information collection, fixed/mobile target detection, identification, localization, tracking and encirclement. Typically, these platforms include unmanned aerial vehicles (UAVs), unmanned surface vessels (USVs), autonomous underwater vehicles (AUVs), remotely-operated vehicles (ROVs), and so on. During the procedures of understanding and exploring the ocean, marine unmanned systems have become an important safeguard for seizing the commanding heights of ocean technology due to their high maneuverability, strong adaptability and low maintenance costs. As the key technologies of marine unmanned systems, the swarm perception and cooperation control have shown great potential in marine application scenarios, which enable the transition from

individual intelligence to collective intelligence. Meanwhile, they are crucial for enhancing the response capabilities of unmanned platforms in complex marine environments. From the theoretical and practical perspectives, this topic discusses and exchanges the research status, progress, achievements, and challenges in the perception and cooperation control of marine unmanned systems.

The scope of the call for papers for this special topic includes, but is not limited to, the following topics:

❉ Detection of underwater cooperative/uncooperative targets

❉ Deployment, routing, clock synchronization, and localization

❉ Cross-domain swarm control for marine unmanned systems

❉ Underwater/surface information fusion and intelligent management

❉ Underwater environment modeling and parameter inversion

❉ Design of underwater acoustic communication protocol

❉ Digital twin modeling of marine unmanned systems

❉ Intelligent detection and image recognition of underwater target

❉ Surface/underwater network privacy and security

❉ New theory and technology of maritime perception and control

❉ Other theories and applications of maritime unmanned systems

If you would like to know more about the topic, please contact Prof. Jing Yan by email: **jyan@ysu.edu.cn**