



LCSR Seminar

"Recent Results and Future Challenges for Autonomous Underwater Vehicles as in Ocean Exploration"

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When: 12PM ET Wednesday, February 1, 2023

Location: Room B17 Hackerman Hall

[Zoom Link for Seminar](#) [Recorded seminars for the 2022/2023 school year](#)

Abstract:

In the past two decades, engineers and scientists have used robots to study basic processes in the deep ocean including the Mid Ocean Ridge, coral habitats, volcanoes, and the deepest trenches. We have also used such vehicles to investigate the environmental impact of the Deepwater Horizon oil spill and to investigate ancient and modern shipwrecks. More recently, we are expanding our efforts to include the mesopelagic or “twilight zone” which extends vertically in the ocean from about 200 to 1000m where sunlight ceases to penetrate. This regime is particularly under-explored and poorly understood due in large part to the logistical and technological challenges in accessing it. However, knowledge of this vast region is critical for many reasons, including understanding the global carbon cycle – and Earth’s climate - and for managing biological resources. This talk will show results from our past expeditions and look to future challenges.

Biography:

Dr. Dana Yoerger is a Senior Scientist at the Woods Hole Oceanographic Institution and a researcher in robotics and autonomous vehicles. He supervises the research and academic program of graduate students studying oceanographic engineering through the MIT/WHOI Joint Program in the areas of control, robotics, and design. Dr. Yoerger has been a key contributor to the remotely-operated vehicle *Jason*; to the Autonomous Benthic Explorer known as ABE; most recently, to the autonomous underwater vehicle, *Sentry*; the hybrid remotely operated vehicle, *Nereus* which reached the bottom of the Mariana Trench in 2009, and most recently *Mesobot*, a hybrid robot for midwater exploration. Dr. Yoerger has gone to sea on over 90 oceanographic

expeditions exploring the Mid-Ocean Ridge, mapping underwater seamounts and volcanoes, surveying ancient and modern shipwrecks, studying the environmental effects of the Deepwater Horizon oil spill, and the recent effort that located the Voyage Data Recorder from the merchant vessel El Faro. His current research focuses on robots for exploring the midwater regions of the world's ocean. Dr. Yoerger has served on several National Academies committees and is a member of the Research Board of the Gulf of Mexico Research Initiative. He has a PhD in mechanical engineering from the Massachusetts Institute of Technology and is a Fellow of the IEEE.