

# WIRELESS COMMUNICATION FOR AUTONOMOUS UNDERWATER VEHICLES

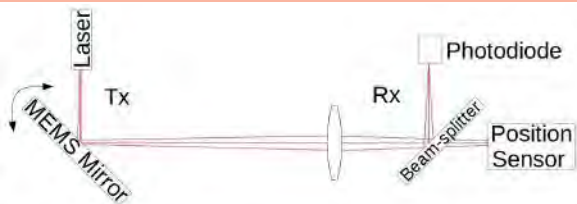


Underwater optical communication replaces traditional sonar technology and allows for high bandwidths, which drastically improves the quality and speed of information transmission underwater.

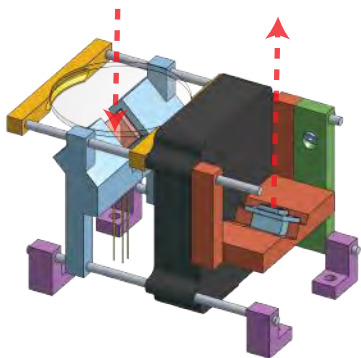
Our approach enables technologies that were previously impossible, for example, underwater video streaming; this expands the horizons of deep-sea research and can provide new insights into marine ecology.

## TRANSFORMING DEEP-SEA EXPLORATION

## Underwater Optical Communication



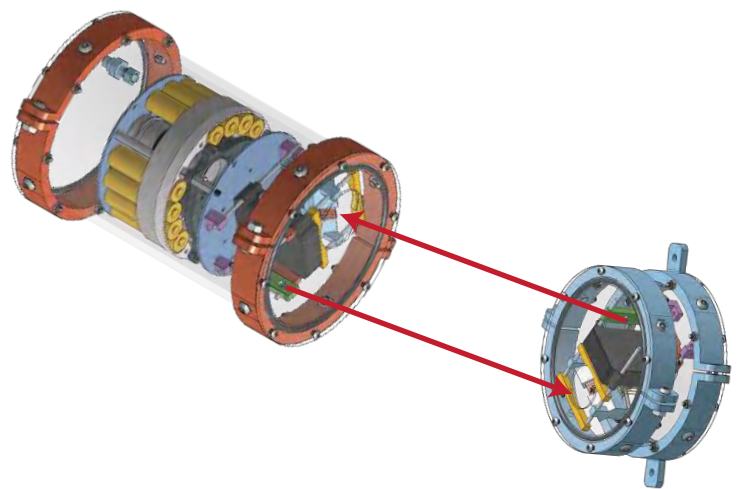
Optical signals are transmitted using a laser and controlled through a MEMS driver. Receiving signals are sent through a beam splitter to the position sensitive device (PSD) and photodiode.



This dynamic tracking system allows for robust feedback control and data communication.

The optical communications components are integrated into an autonomous underwater vehicle (AUV) in a compact form factor.

## Research Goals



By refining our laser feedback-controls algorithm, and integrating our communications system into the AUV prototype, we aim to demonstrate a proof-of-concept of wireless communication between a moving and a stationary drone.