

OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 221

DEVELOPING AN INSTRUMENT FOR MEASUREMENT OF PARTICLE SIZE DISTRIBUTION IN SHIP-BASED UNDERWAY FLOW-THROUGH SYSTEMS

Particle size distribution (PSD) is a fundamental environmental measurement, with diverse biogeochemical applications including carbon cycle science, ecosystem and fisheries modeling, and harmful algal bloom detection/prediction. There is optimism that estimates of PSD will be available from ocean color measurements (such as NASA's planned PACE mission), and will be able to help constrain ecosystem/carbon models and estimates of primary production. However, natural PSD variability is not well understood due to the challenges of routine measurement, and there exists little field data over large space and time scales. We have developed a flow-through particle sizing instrument that covers a wide size range and is designed for integration into shipboard flow-through/underway systems. Key challenges addressed in this work and presented here were to (1) extend the particle size range to submicron sizes using wide angle detectors, wavelength selection, and polarized measurement; and (2) adapt the laser scattering measurement system to underway seawater flow-through system with a high degree of automation.

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