Thursday, October 11
Poster Session 4
10:30–12:00

Poster 271

UNDERWATER RANGED-RESOLUTION MULTI-SPECTRAL MONITORING FOR PHYTOPLANKTON

Discrimination technology for phytoplankton has been established by chlorophyll fluorescence excitation spectra. The spectral technique is utilized widely to analysis the level of eutrophication and phytoplankton diversity. Therefore, research of the species composition and distribution of phytoplankton give us insight in to develop an underwater spectral remote instrument. We developed a low-cost inelastic hyperspectral lidar based on Scheimpflug formed continuous-wave lidar. The lidar has good resolution to detect submillimeter target with counter and multi-spectral identification function. The lidar system can record the ranged-distribution of aquatic particle with a tangential rang resolution. The real-time laser-induced fluorescence signal from different targets distributed at different distances can also be discriminated and recorded separately. Therefore, the instrument is very suitable for monitoring phytoplankton and descripts the chlorophyll concentration distribution. In this work, we descript the range-resolved laser-induced fluorescence of phytoplankton chlorophyll, and water Raman spectra in the clear water. The instrument shows more than 5 m detection range and 5 nm spectral resolution. The algae monitoring in an indoor water tank with condition controlled will be presented. The analysis method of the LIF data of phytoplankton will be represented, which plays a key role for classification. The system provide a kind of new technique to study aquatic organisms.

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