The joint virtual event of the
African Light Source AfLS-2023 (6th)
and the
African Physical Society AfPS2023

Contribution ID: **129** Type: **not specified**

Quantifying trace metal stoichiometry of marine microalgae by synchrotron x-ray fluorescence spectroscopy (SXRF)

Tuesday, 14 November 2023 17:30 (15 minutes)

Iron and other trace metals are essential micronutrients for marine phytoplankton. The availability of these minerals varies seasonally and spatially, and one or more metals is the primary limiting nutrient in about one third of the global ocean. Synchrotron x-ray fluorescence spectroscopy (SXRF) enables simultaneous quantification of multiple elements in individual microalgal (phytoplankton) cells. Chemically preserved microalgae are mapped at submicron resolution to measure biomass proxies (S, P), structural elements (Si), and trace metals (Mn, Fe, Co, Ni, Cu, Zn). These measurements have been used to quantify the biogenic component of particulate iron pools and to compare physiological trace metal requirements of different taxa. This talk will cover practical aspects of sample collection and SXRF analysis as well as brief vignettes of trace metal biogeochemistry informed by these measurements.

Primary author: SOFEN, Laura (Bigelow Laboratory for Ocean Sciences)

Co-author: Dr TWINING, Benjamin (Bigelow Laboratory for Ocean Sciences)

Presenter: SOFEN, Laura (Bigelow Laboratory for Ocean Sciences)

Session Classification: AfLS Contribution

Track Classification: AfLS