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## **A new spectrometer for studying liquid surfaces and interfaces**

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An experimental station optimized for the study of liquid surfaces and interfaces has been constructed at beam line X19C of the NSLS (Brookhaven National Laboratory). This general purpose liquid surface spectrometer is capable of measuring x-ray reflection, grazing-incidence diffraction and fluorescence, surface diffuse scattering, and anomalous reflection. It has the following features: (a) the capacity to use large and heavy sample chambers; (b) a sturdy design that allows for precise (and accurate) specification of the Q-vector as well as enhanced sample stability (important for liquid samples); (c) a single crystal monochromator or multilayer to monochromate and steer the beam; (d) straightforward tuning of the x-ray wavelength (from 6 keV to 17 keV) that allows for measurement of differential anomalous reflectivity and fluorescence, and grazing incidence anomalous x-ray scattering.

To date, the experimental techniques used have included x-ray reflectivity, surface diffuse scattering, and grazing incidence diffraction in the study of surfactant monolayers on the water surface, liquid metal surfaces, and liquid-liquid interfaces. Selected data will be used to illustrate the capabilities of this spectrometer.