Abstract Submitted
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Compton Scattering from Bulk and Surface of Water[1] WENJIE WANG, Ames Laboratory, Iowa State University, Ames, IA, IVAN KUZMENKO, Advanced Photon Source, Argonne National Laboratory, DAVID VAKNIN, Ames Laboratory, Iowa State University, Ames, IA — Elastic and Compton scattering at grazing angle X-ray incidence from water show distinct behaviors below and above the critical angle for total reflections suggesting surface restructuring of the water surface. Using X-ray synchrotron radiation in reflectivity mode, we collect the Thomson and Compton scattering signals with energy dispersive detector at various angles near the normal to surface as a function of the angle of incidence. Analysis of the ratio between the Thomson and Compton intensity above the critical angle (which mainly probes bulk water) is a constant as expected from incoherent scattering from single water molecule, whereas the signal from the surface shows strong angular dependence on the incident angle. Although we do not fully understand the phenomena, we attribute the observation to more organized water at the interface.

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