IMCE

先導物質化学研究所 講演会

九州大学 KYUSHU UNIVERSITY

New Directions in Physics of Interfaces by Grazing Incidence Illumination
− from hierarchical structure, element-specific spectroscopy to interfacial dynamics −

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Since one of the first reports on surface tension by Benjamin Franklin at the Royal Society in 1774, ample evidence suggested that an interface is not merely a boundary between two phases. Interface possess structures that realize a variety of functions that are distinctly different from those in bulk. However, the quantitative characterization of interface, especially the liquid interface, has been, and, it is still, remaining as a major scientific challenge.
Recent developments in optics enable us to shed light on the interface from different aspects. A prominent example is the use of “grazing incidence illumination”, which allows the precise control of the penetration depth of the electromagnetic field simply by the angle of incidence.
In my talk, I am going to introduce you three directions that we have been developing by using grazing incidence synchrotron radiation, which go far beyond of the classical specular reflectivity:
(1) Quantification of shape, size, and correlation of self-assembled nanoobjects at the air/water interface,
(2) Localization of ions and elements in near the interface at Ångstrom resolution, and
(3) Real-time tracking of chemical reactions at the interface by monitoring the interface dynamics.
The talk is prepared for non-experts and students, so that the audience can learn “what can be done using advanced light sources”.

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