

The Future of GISAS: Challenges and opportunities in GISANS

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Neutrons are characterized by a weak interaction, resulting in a high penetration power, for many engineering materials. This property is combined with a relatively large scattering power for light elements. These facts make neutrons an ideal probe for the study of buried liquid interfaces. In particular, the finite angle of total external reflection at the interfaces between many solids and deuterated liquid opens unique possibilities for the study of the near surface structure of fluids in contact with a solid wall.

In this presentation neutron small angle scattering applied under grazing incidence beam geometry (for the scattering geometry see Figure 1) will be introduced and the peculiarities will be discussed. An overview over recent results of self assembled polymers, colloids as well as magnetic particles will be given.

The scientific challenges and opportunities will be discussed on the example of a model system of a micellar aqueous three block polymer solution in contact to silicon wafers with distinct terminations [2]. Emphasis will be on exploiting the broad spectrum of incident wavelength at time of flight instruments for depth [3] as well as time [4] resolved experiments.

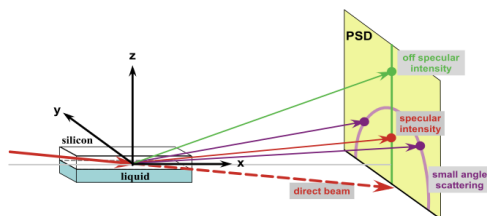


Figure 1:
Scattering geometry for grazing incidence scattering experiments from the solid-liquid boundary [1].

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