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**Grazing Incidence Small Angle Neutron Scattering Techniques and Applications to Bilayer Membranes.**

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Biological and artificial bilayer membrane structures include aspects that can be studied by grazing incidence small angle neutron scattering. These are primarily in-plane or near-in-plane features. Of special current interest is the demixing or partial demixing of lipid mixtures resulting in putative raft formation, which can be studied by using certain of the lipid components in deuterated form to provide in-plane contrast. Techniques for such measurements are developing and will be discussed. Other areas of interest include 2D crystals of membrane components, which for grazing incidence produce Bragg rods of diffraction whose intensity perpendicular to the in-plane axis provides structural characterization in 3D. Applications to membrane proteins are of particular interest.