



Neutron Scattering Studies of Biological Membranes

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Biomembranes are the active boundary between cells and their surroundings. They are sophisticated and dynamic machines that perform a diverse array of functions, including selective transport, localization, and recognition, to name a few. It is also widely accepted that the plasma membrane is laterally heterogeneous containing nanoscopic regions enriched in certain types of lipids, which have different physical properties from the surrounding lipids. In biology, these functional lipid domains are commonly referred to as “rafts”.

Rafts have been implicated in a wide range of cellular functions, including signal transduction, drug uptake, and interactions with pathogens. In recent years, we have used small angle neutron scattering (SANS) and neutron spin echo (NSE) to study nanoscopic lipid domains in model membrane systems [1-3] and more recently, in the Gram-positive bacterium *Bacillus subtilis* in which the first ever observation of lipid domains was made [4]. The seminar will conclude with descriptions of future projects.

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[3] J. D. Nickels et al., *J. Am. Chem. Soc.* 137, 15772 (2015) [4] J.D.

[4] Nickels et al., *PLoS Biology* 15, e2002214 (2017)