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Investigating Biomembrane Mimics and Lipid-Based Biomaterial Surfaces with Neutrons

Tuesday, 23 May 2023 13:30 (40 minutes)

Lipids are ubiquitous constituents of biological matter, notably of biomembranes, but also widely used for biomedical applications such as drug delivery systems. To understand their biological roles and functional properties, detailed structural insights are often required. We use neutron scattering and reflectometry to characterize well-defined experimental models of biomembranes and lipid-based biomaterial surfaces. The talk will cover several examples, including the conformation of membrane-bound saccharides on the surfaces of bacteria [1], the influence of glycolipids on the properties of lipid membranes [2, 3], the interaction of antibodies and other proteins with the PEGylated surfaces of lipid-based drug delivery systems [4, 5], and the role of lipids in the prey capture slime of velvet worms [6].

- [1] Rodriguez-Loureiro et al., *Biophys. J.*, 114, 1 (2018)
- [2] Schneck et al., *Biophys. J.*, 100, 2151 (2011)
- [3] Kanduc et al., *Nature Communications*, 8, 14899 (2017)
- [4] Schneck et al., *Biomaterials*, 46, 95 (2015)
- [5] Latza et al., *Langmuir*, 33, 12708 (2017)
- [6] Baer et al., *Small*, 10.1002/smll.202300516 (2023)

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