Membrane Hydration and Fusogenicity: Effect of Cholesterol

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Membrane hydration has been known to play a pivotal role in determining membrane stability and their fusion propensity. Membrane structure is heterogeneous as it contains several motifs and therefore its hydration is also not straightforward. Membrane fusion is associated with an initial dehydration process to cross the hydration energy barrier prior to fusion. A detailed insight into membrane hydration is therefore highly solicited to understand membrane fusion process. THz spectroscopy measurements offer a unique avenue to label free determination of water structure and dynamics around solute molecules. We deploy THz spectroscopic measurements to understand hydration of model lipid membranes. In this talk we will summarize some recent results from our lab on membrane hydration, the effect of addition of cholesterol into it and how membrane hydration modulates as it undergoes fusion.