

## PHYSICAL CHEMISTRY & FORMULATION

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### **Speculation on the origin of the hydrophobic interaction**

Cosmetic formulations often rely on self-assembly of lipids and other macromolecules which is driven by the hydrophobic interaction, i.e. oil and water don't mix! While it is generally accepted that its origin is associated with the hydrocarbon driven perturbation of the hydrogen bonding network that is responsible for the cohesive energy of water, the detailed mechanism remains elusive. In this presentation, I will introduce a speculative toy model that is consistent with much of what is known about the hydrophobic interaction at the molecular level. This approach for correlations between hydrogen bonds is inspired by the well-known Hubbard Model for strongly correlated metals.