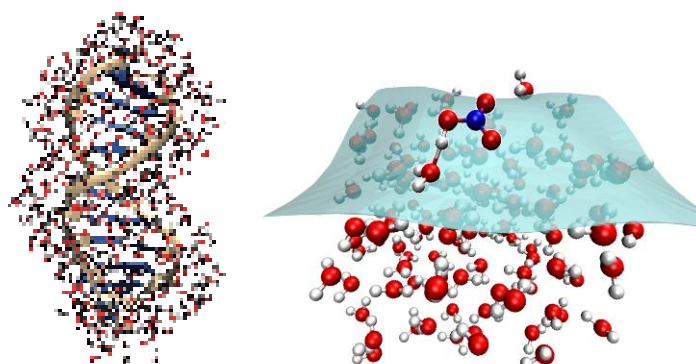


Dynamics and chemical reactivity at aqueous interfaces

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Aqueous interfaces are ubiquitous and play a key role in fields ranging from atmospheric chemistry to biochemistry, heterogeneous catalysis, and nanofluidics. The properties of water at these interfaces are very different from those in the bulk, and can have a dramatic impact on chemical reactivity. I will first show that a jump picture for hydrogen-bond exchanges in water[1] can describe how water dynamics is affected at a broad range of interfaces, including the air/water interface, the water/electrode interface[2], and within the hydration layer of a biomolecule[3]. I will then show how interfacial layer properties can affect chemical reactions: first for environmentally relevant reactions on aqueous aerosols, where some acids become more acidic than in the bulk while others become less acidic, and then for enzymatic reactions where the suggestion that water acts as a lubricant of conformational transitions will be examined.



[1] D. Laage, G. Stirnemann, F. Sterpone, R. Rey, J.T. Hynes, *Annu. Rev. Phys. Chem.* (2011) 62, 395-416.

[2] Y. Zhang, H.B. de Aguiar, J.T. Hynes, D. Laage, *J. Phys. Chem. Lett.* (2020) 11, 624-631.

[3] D. Laage, T. Elsaesser, J.T. Hynes, *Chem. Rev.* (2017) 117, 10694-10725.