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Dynamics of complexes embedded in helium nanodroplets, from rotation to solvation

Helium nanodroplets are intriguing entities, these superfluid physical objects were made at the end of the 20th century and share common features with Bose-Einstein condensates.
With a temperature of only 0.38K, they are now playing a major role as a host for atoms, molecules and clusters for preparing cold samples and in the formation of atomic/molecular clusters. Their high thermal conductivity, vanishing viscosity and high ionization potential make them a fantastic solvent for the study of fundamental interactions on a large variety of species.
In this talk, I will present some recent results concerning the rotational dynamics of molecules either embedded in helium nanodroplets or sitting on its surface.
I will then show how we can track the successive attachment of helium atoms onto an alkali ion deposited on its surface, making it the first atomistic measurement of a solvation dynamics.

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