Minicolloque n° 4 ☒ **Oral** ☐ **Poster**

Dynamics of Water Confined in Mesopores with Variable Surface Interaction

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Nanoconfined and interfacial liquid water plays an essential role in nature and in technology. The water/surface interaction can be envisioned as a driving parameter of water dynamics confined in porous materials. This talk assesses how the water dynamics of nanoconfined water is affected by a spatial modulation of the surface-water interaction [1].

The rationale of the study relies on our ability to design nanochannels with an inner surface that exhibits a periodic succession of molecular bridging units with alternating hydrophilicity (cf. Figure). It benefited from the latest developments in quasi-elastic neutron scattering techniques, in terms of flux, resolution and models, which have pushed up the standards in QENS study of water. This work also highlights the complementarity of QENS with alternative experimental methods, such as PFG NMR and dielectric spectroscopy, in terms of accessible dynamical, spatial and temperature ranges.

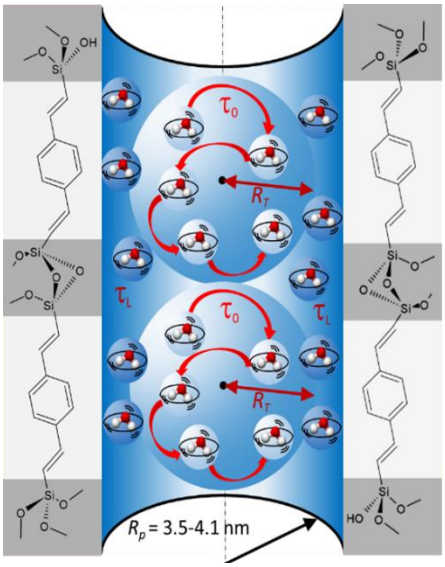

Figure : : Sketch of the water molecules confined in a nanochannel of a radius R_p with pore wall formed by a periodic repetition of hydrophobic (light gray)/hydrophilic (dark gray) bridging units.

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[1] A. Jani et al., Journal of Chemical Physics, 154 (9), pp.094505 (2021)