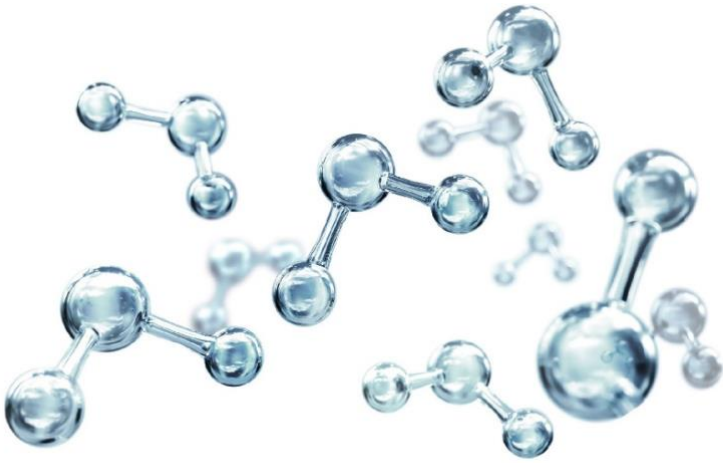
Seminar

CMWS Centre for Molecular Water Science

11th of May 2023
12:00 h

Zoom Virtual Meeting:

https://tuhh.zoom.us/j/82631283465
Meeting-ID: 826 3128 3465
Password: 978444



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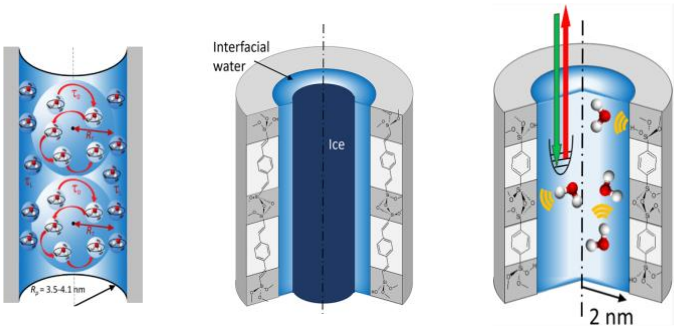
Confinement of water in nanoporous host materials

Water is undoubtedly the most important substance on earth. It is ubiquitous in nature and a necessary liquid for the emergence of life. In most frequent situations, water is found as spatially confined or in an interfacial state rather than forming a bulk phase. From a fundamental point of view, confining water at the nanoscale in prototypical porous solids has turned out to be particularly adequate in order to better understand the unusual behavior of interfacial water and ice.

Here we present some results of different studies dealing with the behavior of confined water in different nanoporous silicas and organosilicas with pore diameters between 2-10 nm [1,2] with respect to its dynamics and melting/crystallization [3-7]. The used organosilicas barely used in water studies so far are very well suited to tune the water-pore surface interactions. In contrast to the MCM-41 silica the organosilicas can contain organic bridging units within the quasi-crystalline pore walls and therefore a periodically alternating surface chemistry along the pore channels in the 0.7-1.3 nm range.



References

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[7] A. Jani, M. Busch, J.B. Mietner, J. Ollivier, M. Appel, B. Frick, J.-M. Zanotti, A. Ghoufi, P. Huber, M. Fröba, D. Morineau, *J. Chem. Phys.* **2021**, *154*, 094505 (13 pp).