CONFLUENCES IMFT

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Vendredi 11 octobre à 14 h 30 • Amphithéâtre Nougaro

Bridging realms: nanofluidics between soft and hard condensed matter

Carbon nanomaterials exhibit peculiar properties in terms of waterpermeation, ultralow hydrodynamic friction and exalted ionic transport. These results challenged the classical description of ater-carbon friction and they lead to a novel theoretical rationalization of fluid transport in nanochannels based on coupling between collective excitations of electrons in the solid and molecules in the liquid.Although this new framework seems to reconcile the existing results for water transport at interfaces of graphene and carbon nanotubes, the demonstration of quantum liquid-solid friction is still missing. In this talk we revisit the current state of art of fluid properties at nanoscale and we will present recent experimental investigations of the complex coupling between fluid behavior and the electronic properties of confining materials.

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