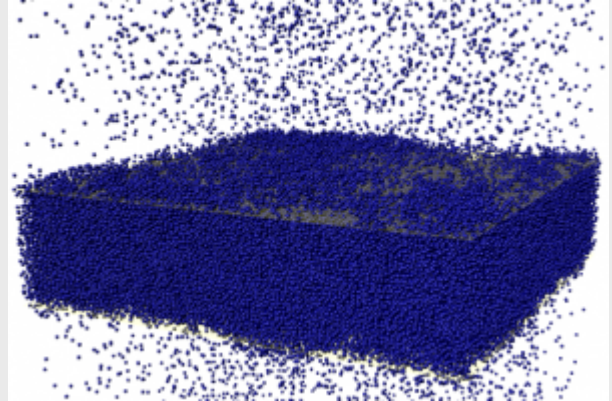


Enhanced Surface Tension of Liquid-vapour Interfaces at Mesoscopic Scales

Wednesday, 17th April 2013. 15:00-16:00



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ABSTRACT:

Due to the simultaneous presence of bulk-like and interfacial fluctuations the understanding of the structure of liquid-vapour interfaces poses a long-lasting and ongoing challenge for experiments, theory, and simulations. In this context, we have generated high-quality molecular dynamics data for a Lennard-Jones fluid mimicking long-ranged van der Waals attraction. Upon lowering the temperature from that of the critical point to that of the triple point, the wavenumber-dependent surface tension develops a maximum at non-zero wavenumber so that its functional form changes from concave to convex at mesoscopic length scales.