universität innsbruck

Department of
Theoretical Physics

Theory Colloquium

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"Thermodynamics of colloidal liquids: From shape dependence to quasi-universality"

Abstract

Thermodynamic properties of colloidal liquids depend sensitively on the shape of the particles, modelled by hard bodies. In contrast to Coulomb, dipolar or any other pair potential, hard-core interactions are completely determined by the particle's shape. Two new conceptional methods for convex-hard-body fluids allowed us to express thermodynamic quantities, e.g. the equation of state, by the shape of the convex hard particles [1]. A combination of these analytical results and Monte-Carlo simulations for two-dimensional fluids of convex hard polygons has led to the discovery of quasi-universal behavior, depending on the number of corners of the polygons [2].

[1] T. Franosch, C. De Michele, R.S., Phys.Rev. Research, 7, 023260 (2025);

[2] A. Lüders, R.S., T. Franosch, in preparation.

Wednesday | 19.11.2025 | 5:00pm

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