

Comparison of the transport properties in fluids of equivalent prolate and oblate mesogens in the nematic phase

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Liquid crystalline phases appear in fluids of anisotropic particles with different shapes, as rod-like or disk-like particles. In this work, we establish several geometrical equivalences for prolate and oblate spherocylinders to compare their equilibrium dynamical properties, such

diffusion coefficients or rotational viscosities. By means of molecular dynamics simulation, we conclude that several regimes appear for the transport behavior at similar packing fraction, from important viscosity dissimilarities to practically equal transport properties.