

Fluctuation-Induced Pressures in Fluids in Non-Equilibrium Steady States

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Theory and experiments have shown that thermal fluctuations in fluids in non-equilibrium steady states are always long range encompassing the entire system. These fluctuations are strongly affected by finite-size effects and will induce non-equilibrium fluctuation-induced Casimir-like pressures. Specifically, we shall consider non-equilibrium pressures induced by temperature fluctuations in fluids in the presence of a temperature gradient and non-equilibrium pressures induced by concentration fluctuations in mixtures in the presence of a concentration gradient.