Dynamics of thin liquid polystyrene films

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— We have applied x-ray photon correlation spectroscopy (XPCS) to study the dynamics of surface fluctuations in thin supported polystyrene films. Film thicknesses, ranging from four times the radius of gyration (Rg) to two times Rg, were used in this study. We found different behaviors in the relaxation times as a function of wave vector with different molecular weight. The observed behavior shows a deviation from the conventional capillary wave predictions. The analysis will be discussed in terms of surface tension, viscosity and effective interactions with the substrate.

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