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Impact of substrate roughness on the segmental mobility of thin polymer films. ANNA PANAGOPOULOU, SIMONE NAPOLITANO, Universit Libre de Bruxelles (ULB), LABORATORY OF POLYMER AND SOFT MATTER DYNAMICS TEAM — We have investigated the impact of substrate roughness on the segmental mobility of spincasted thin films of different polymers. In neat disagreement with predictions of molecular dynamics simulations of the structural relaxation of Lennard-Jones liquids [1], segmental dynamics does not slow-down upon increase of the roughness of the substrate on which polymer layer is deposited. Our results indicate, on the contrary, an enhancement in segmental mobility with interfacial roughness, proportional to the sensitivity of the polymer to a perturbation in volume. In line with current literature, we deduce that the reduction in relaxation time with increasing roughness implies an excess in interfacial free volume, probably caused by partial wetting at the polymer/substrate interface. [1] P Scheidler, W. Kob and K. Binder, Europhys. Lett. 59, 701 (2002)

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