Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Correlation between the interfacial bond orientational order and the shift in T_g upon confinement SIMONE NAPOLITANO, Université Libre de Bruxelles — The two-order-parameter (TOP) model rationalizes the interfacial slower dynamics in terms of enrichment in bond orientational order (BOO), near the wall [1]. Recently, we verified that the dielectric strength, $\Delta\epsilon$, is a robust parameter for measuring the BOO, as $\Delta\epsilon = g<\mu^2>/k_BT$, where μ is the dipole moment, and g accounts for the correlation among neighbor dipole moments. We obtained interfacial values of the dielectric strength, $\Delta\epsilon_{int}$, analyzing the thickness dependence of all the polymers for which $\Delta\epsilon$ was measured upon confinement in ultrathin films. Although for all the investigated systems $\Delta\epsilon$ decreases in proximity of a solid interface due to the reduction in $<\mu^2>$ upon adsorption [3], we identified a striking correlation between $\Delta\epsilon_{int}$ and the shift in T_g upon confinement. Increases in T_g were univocally correlated to nonzero positive values of $\Delta\epsilon_{int}$, implying a larger BOO near the wall, in line with the predictions of the TOP model. [1] Watanabe, Kawasaki, Tanaka, Nature Materials 2011, 10, 512 [2] Capponi, Napolitano, Wuebbenhorst, Nature Comm. 2012, accepted [3] Napolitano, Wuebbenhorst, Nature Comm. 2011, 2, 260

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Date submitted: 04 Dec 2012 Electronic form version 1.4