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Glassy dynamics in thin layers of polystyrene and polyisoprene<sup>1</sup> EMMANUEL URANDU MAPESA, MARTIN TRESS, FRIEDRICH KREMER, University of Leipzig — Broadband Dielectric Spectroscopy (BDS), Spectroscopic vis-Ellipsometry (SE), X-Ray Reflectometry (XRR), Alternating (ACC) and Differential Scanning Calorimetry (DSC) are combined to study glassy dynamics and the glass transition temperature in nanometric thin  $(\geq 5 \text{ nm})$  layers of polystyrene (PS) having widely varying molecular weights (27,500 to 8,090,000 g/mol). For the dielectric measurements two sample geometries are employed, the common technique (capped) using evaporated electrodes and a recently developed approach (uncapped) taking advantage of highly-insulating silica nanostructures as spacers. All applied methods deliver the concurring result that deviations from glassy dynamics and from the glass transition temperature of the bulk never exceed margins of  $\pm 3K$  independent of the layer thickness and the molecular weight, indicating that the length scale of interfacial interaction is restricted to less than 5 nm. We also show preliminary BDS results where thin layers of cis-1,4-polyisoprene (PI) are measured in both geometries; there are indications that the confinement-induced mode is absent when the layers are uncapped.

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