

# Electronic Supplementary Information (ESI) for “Effect of Tethering on the Surface Dynamics of a Thin Polymer Melt Layer”

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Relaxation times for the bilayer samples made by placing  $45 \pm 2$  nm thick untethered dPS chains on silicon, or on 21, 40 and 76 nm thick PS brushes were measured at 90, 100 and 120°C. The data for 100°C are shown in the main text. Relaxation times vs. in-plane wavevector at 90 and 120°C are shown in Fig. S1 and Fig. S2, respectively. Relaxation times increase as the brush thickness increases as in the case of the data for 100°C.

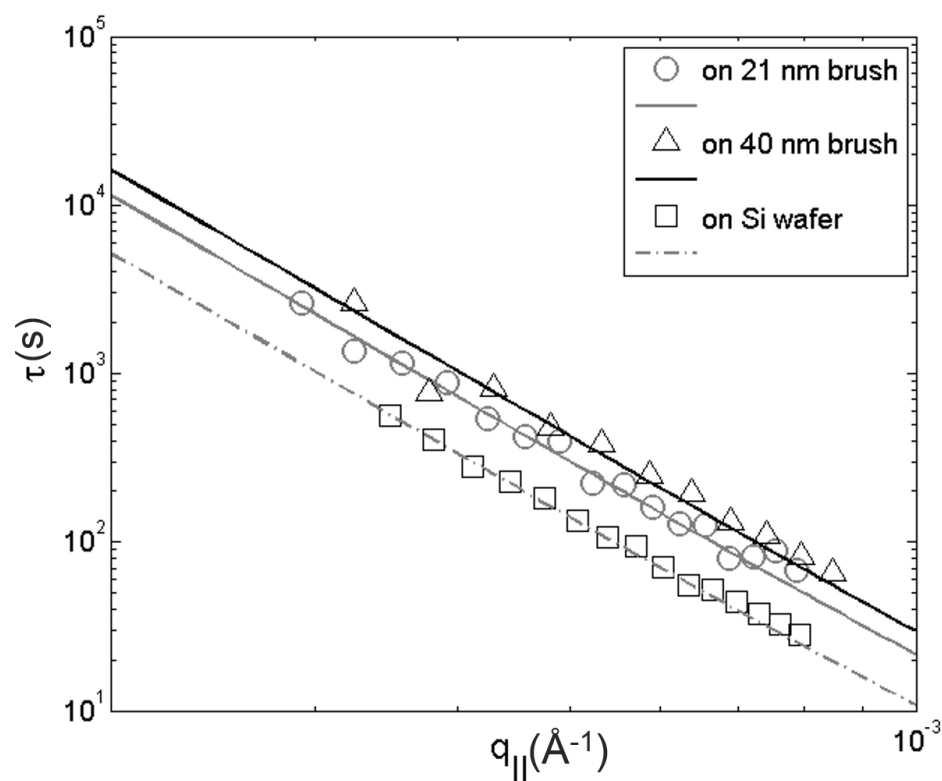


FIG. S1: Relaxation times ( $\tau$ ) at 90°C for samples made by placing  $45 \pm 2$  nm of untethered dPS on a Si wafer (square), or on a 21 nm (circles), or 40 nm (triangles) thick, dense brush.

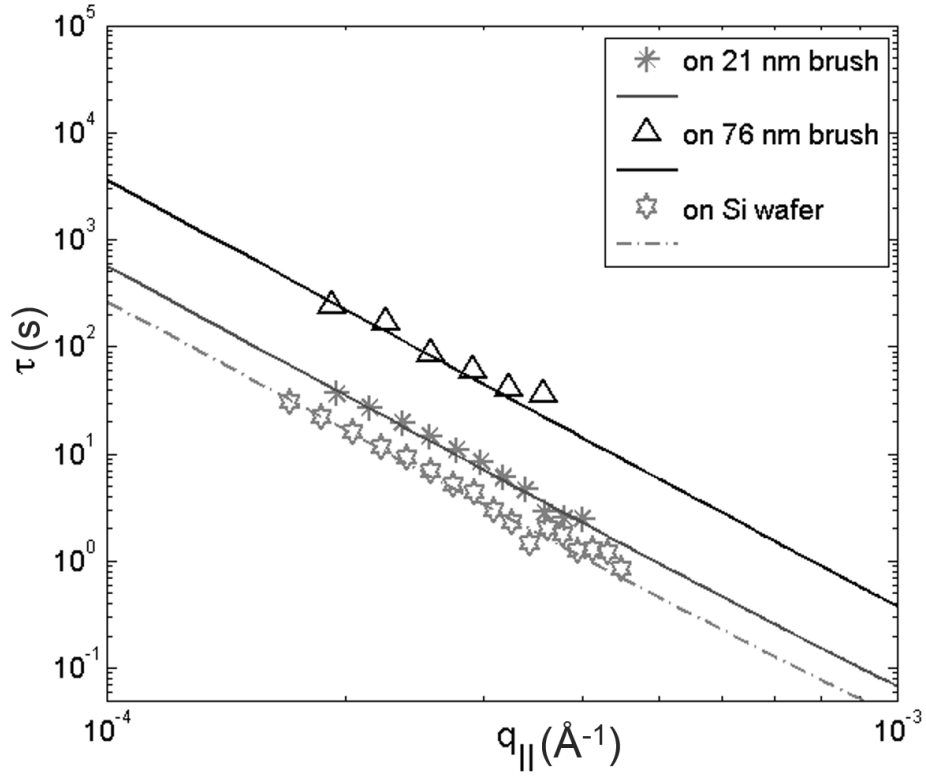


FIG. S2: Relaxation times ( $\tau$ ) at 120°C for samples made by placing  $45 \pm 2$  nm of untethered dPS on a Si wafer (star), or on a 21 nm (asterix), or 76 nm (triangles) thick, dense brush.

In Fig. S3 are show neutron reflectivity curves corresponding to the SLD profiles of bilayers made with 23, 40 and 73 nm thick densely grafted brushes and for which the overall sample thicknesses increased by  $46 \pm 3$  nm when the untethered chains were spun on. The corresponding SLD profiles are shown in Fig. 3 of the main text.

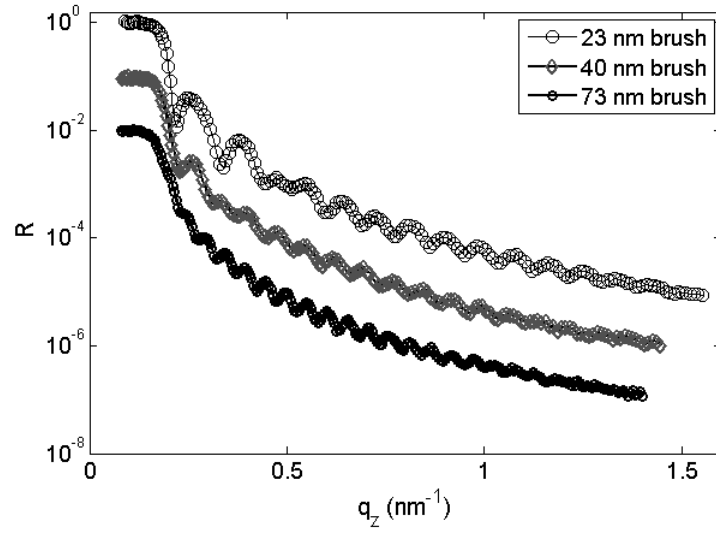


FIG. S3: Neutron reflectivity (open symbols) and best fit model curves (solid lines) as functions of  $q_z$  at 100°C for bilayer films on 23 nm (top), 40 nm (middle) and 73 nm (bottom) thick brushes.