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Thermal Behaviors of PS Thin Films on Grafted PS Layer with Varied Grafting Density HOYEON LEE, SUNGMIN PARK, YONGHOON LEE, EUNYOUNG CHOI, DU YEOL RYU[1], Yonsei University, DAVID M. TROMBLY, VENKAT GANESAN[2], University of Texas — The thermal behavior properties (especially glass transition) are the key parameters for determining the mechanical properties of polymer system. In thin film system, the interfacial interactions at the substrate/polymer and polymer/air influence the transition behavior. In this study, we investigated the inter-relationship between the interfacial interactions arising from grafted polymer layers and the glass transition behavior (Tg) of thin polymer films with same chemical identity. We controlled grafting density of hydroxyl-terminated polystyrene (HO-PS). For polymer chains on the brushes of the same chemical identity with high density, the autophobic dewetting behavior can be attributed to the entropic effects of the polymer and the grafted polymer chains.

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