

Abstract Submitted
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Enhanced Tg-Confinement Effect in Crosslinked Polystyrene Characterized by Ellipsometry KAILONG JIN, JOHN TORKELSON, Northwestern University — The effects of nanoscale confinement on the glass transition temperature, T_g, and related behavior are studied in crosslinked polystyrene (PS). Crosslinked PS films are achieved by thermally annealing the spin-cast linear precursor (polystyrene-vinylbenzocyclobutene) films with varying thicknesses at 250 °C. T_g reductions are observed with ellipsometry measurements of both supported linear and crosslinked PS films, with confinement effects being enhanced in crosslinked polystyrene compared to the linear precursor. The greater magnitude of T_g reduction observed in confined crosslinked PS films can be rationalized by the increased bulk fragility induced by crosslinking. Effects of confinement on fragility and physical aging in the crosslinked PS will also be discussed.

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