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The Dynamics of a Polymer Confined in Anodic Aluminum Oxide Nanopore GI XUE, YE SA, Nanjing University — The dynamics of poly (n-butyl methacrylate) confined in porous templates are investigated using DSC and Fluorescence nonradiative energy transfer. Two glass transition temperatures are obtained at a slow cooling rate of which one bulk-like phase reflects core layer while the other at much higher temperature indicates interfacial layer in the confined polymer glass. Because of cylindrical geometry, the glass transition energy barrier of interfacial layer is elevated, and the thereof temperature threshold to form one or two glass transitions is determined through adjusting infiltrating temperatures. In addition, the glass transition behavior is speculated to be meditated by the counterbalance of the size and interfacial effects in the confined space.

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