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Stress Relaxation of 1,4-polyisoprene T- and Y-shaped Star Polymers JUNG HUN LEE, LYNDEN A. ARCHER, School of Chemical and Biomolecular Engineering, Cornell University — We discuss the stress relaxation of 1,4-polyisoprene T- and Y-shaped star polymers in order to identify the effect of branch-point on the relaxation dynamics. The effects of arm length asymmetry and the position of branch-point on the stress relaxation are investigated by varying molecular architecture from T-shaped to Y-shaped. We observed the measured loss modulus more sensitively reflects a transition in the governing dynamics from star-like to linear-like according to the given architectures. This finding suggests a possibility to describe the dynamic transition by the constituent structural terms. A simple relationship between the branch-point motion and the given architecture is discussed based on the widely used microscopic model frame for the branched polymers.

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