

Abstract Submitted
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Melt rheology studies of polymer chain dynamics in the presence of nanofillers SUDEEPTO SEN, SANAT KUMAR, Rensselaer Polytechnic Institute, RALPH H. COLBY COLLABORATION — We will present results from recent and ongoing melt rheology runs on a series of nanocomposites with polystyrene as the matrix and silica nanoparticles (10-15 nm in diameter) as the fillers. A number of combinations of the matrix molecular weight and nanofiller concentrations are being studied to elucidate the trends in the system dynamics for a number of different concentrations of the nanofillers in a given matrix molecular weight and for a given nanofiller concentration over a range of matrix molecular weights. Melt rheology runs are being performed also on the pure polymers for comparison purposes. This elucidates the long term relaxation dynamics of a matrix polymer in the presence of nanofillers; when compared with the corresponding pure polymer in the terminal region, the nanocomposite shows a lower G' slope indicating a slowing down of the relaxation dynamics in the presence of the nanoparticles.

Sudepto Sen
Rensselaer Polytechnic Institute

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