Computational study of gel transition and jamming in an ensemble of reversible associating polymers[1] ARLETTE BALJON, DANNY FLYNN, DAVID KRAWZSENEK, San Diego State University — The sol/gel transition is studied in model telechelic polymers. We find that, as in the case of glass-forming liquids, the transition range is very broad. Four characteristic temperatures for gel formation are calculated: (1) the temperature below which relaxation times no longer show Arrhenius dependence on temperature; (2) the Vogel-Fulcher temperature at which the structural relaxation time extrapolates to infinity; (3) the analogue of the crossover temperature defined by Mode Coupling Theory; (4) the "jamming" transition temperature at which the number of reversible bonds sharply increases and their distribution over micelles changes qualitatively. These temperatures are obtained from measurements of diffusivity, specific heat, and network topology. The effect of external shear will be discussed as well.

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