



P.29 Microscopic probing of melting and gelation processes in well-defined biopolymer network

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Multiple particle tracking microrheology is used to study the melting and gelation behaviour of thermal responsive, telechelic, collagen-inspired polypeptide, TR4T, expressed by transgenic *P. Pastoris*. The system consists of a hydrophilic random coil-like middle block and collagen-like end blocks. Upon cooling, end blocks assemble into well-defined transient nodes with exclusively three-fold functionality. In this work, we demonstrate the master curves obtained from mean squared displacements of tracer beads by using the method of superposition introduced earlier for both melting and gelation processes. Melting point, gel point and critical relaxation exponents are determined from the shift factors. The use of dynamic scaling exponents to correctly determine the critical transition points is discussed. Critical relaxation exponents obtained for different concentrations in both systems are compared with the currently existing dynamic models in literature. Additionally, we demonstrate the strong dependence of critical transition points on concentration and compare the kinetics of both processes.

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