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Solvent Effect on the Melting of Biopolymers LINGYUN ZHANG,
University of California, Los Angeles, AN-CHANG SHI, McMaster University —
The melting process of biopolymers has been studied using self-consistent field theory of polyelectrolyte system. The chain statistics, polymer-solvent and electrostatic interactions are described by a set of coupled nonlinear equations. In particular, the effect of counterions on biopolymer is included in the nonlinear Poisson-Boltzmann equation. The influence of the solvent on the conformational behavior of biopolymers has been studied. Starting from the free energy of system, the thermodynamic properties of biopolymers are obtained. The theoretical results for the denatured temperature on the counterion concentration are in agreement with experiments. The relationship between the specific heat and temperature has been obtained numerically, which is used to explain the experimentally observed coefficient of linear specific heat at low temperature.

Lingyun Zhang
University of California, Los Angeles

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