MAT 404 Polymer Physics Concept List

Overlap volume fraction/concentration

Pervaded volume

Contour length

End-to-end vector

Ideal chain models (freely jointed, freely rotating, worm-like chain, hindered rotation, rotational isomeric state)

Characteristic ratio (C_∞)

Kuhn monomer

Kuhn length (equivalent freely jointed chain)

Free energy of an ideal chain

Entropic spring constant

Tension blob, scaling argument

Number density of monomers

Mayer f-function

Excluded volume (in athermal, theta, good, poor, non-solvent)

Flory theory of a polymer in a good solvent

Entropy of binary mixing

Energy of binary mixing

Flory-Huggins equation

Flory interaction parameter (X)

Stability of polymeric mixtures

Common tangent rule

Polymer phase diagrams

Critical composition

Critical temperature

Upper critical solution temperature (UCST)

Lower critical solution temperature (LCST)

Shear modulus of polymeric network

Rubbery plateau modulus

Stress relaxation modulus

Equilibrium shear modulus

Storage modulus

Loss modulus

Loss tangent

Hydrodynamic radius

Rouse model

Zimm model

Einstein relation

Stokes-Einstein relation

Kuhn monomer relaxation time (relaxation modes in general)

Intrinsic viscosity (in relation with relative, specific, reduced viscosity)

Mark-Houwink equation

Edwards tube model