
Index

- ABC triblock 45–47, 62–66, 147, 176–177, 182–183
- Adsorption kinetics 226, 229–231, 234
- Alpha helix 202–204, 206–208, 265
- Amyloid 204
- Aniansson-Wall theory 53–55
- Annealed polyelectrolyte 173
- Anomalous micellization 21
- Anomalous SAXS 188
- Association number 23, 26, 29–30, 31, 43–44, 47–50, 53, 77, 175, 184–185, 189, 194
- Associative thickener 60, 62
- Atomic force microscopy (AFM) 11–12
- Baxter model 14, 51
- Beta sheet 202, 204–206, 207, 249
- Bicontinuous sponge 116
- Bidisperse polymer brush 225
- Biocompatibility 224, 251
- Biodegradable surface 224, 248
- Birefringence 133, 140, 150
- Blob model 34, 144, 152
- Block copolymer/lipid complex 267–268, 275
- Block copolymer/surfactant complex 76–78, 128, 198–199
- Block copolymer/surfactant conjugate 273–274
- Bowl-shaped micelle 178
- Brewster angle microscopy 217–218
- Bridging 29, 60–61, 129–131, 162–163, 233
- Brush model 33–40, 48, 90–91, 188–190, 216–218, 220, 232, 235–236
- Caging 162
- Capillary gel electrophoresis 268
- Carnahan-Starling equation 16
- Chain dynamics 56–60
- Coiled coil 203, 206–207
- Cold gelation 126
- Composition fluctuations 133–135, 144–146, 151
- Compound micelles 79, 83, 176
- Compound vesicles 82
- Computer simulation 44–45, 148–149, 234–236
- CONTIN 9
- Cooperative diffusivity 159–160
- Corona layer thickness 48–49, 184–185, 222, 225
- Counterion distribution 187, 188, 191
- Creep experiments 154, 158–159
- Critical aggregation concentration (cac) 62, 76, 198
- Critical gel concentration (cgc) 124–126, 201
- Critical micelle concentration (cmc) 20–25, 29, 32–33, 42, 43, 175, 190
- Critical micelle temperature (cmt) 24, 32–33, 40, 42–44
- Cross-linking 62–66, 68–71, 79, 84–85, 116, 131–132, 206, 249, 259–260, 261–263
- Cryo-TEM 7
- Crystallization in micelles 90–91
- Cubic-cubic phase transition 137–139
- Cyclic copolymers 28–30
- Daoud-Cotton model 34–35, 48, 187, 235, 243
- Debye plot 15
- Demicellization 132
- Dendrimer-containing block copolymer 32
- Density functional theory 136–137, 148
- Density profile 35, 48, 217, 221, 246
- Detergency 241

- Dielectric spectroscopy 119, 130
Differential scanning calorimetry 8
Diffusion coefficient 9
Dilution approximation 106–107, 133–134, 143, 147
Disk-shaped micelle 63, 68, 91
DNA complexation 196–197, 249, 251–252
Domain spacing scaling 115, 140–143, 187
Double hydrophilic copolymers 132, 179, 182, 258
Dynamic density functional theory 149, 195
Dynamic light scattering 8–10
Dynamic modes 56–60, 135, 159–160
Dynamic shear moduli 117–119
Dynamic structure factor 57, 164
- Elastic modulus
Electric-field alignment 140
Ellipsometry 10
Emulsification 215, 241, 245–246
Enthalpy of gelation 126
Enthalpy of micellization 8, 23–25, 32–33, 77
Enzymatic degradation 253
EPR (enhanced permeability and retention) mechanism 248
Exchange kinetics 53–56
- Flower-like micelles 29, 45, 60–61, 129, 163, 261
Fluorescence probe experiments 10, 52, 56, 77, 90
Fluorinated chains 60, 62, 64, 130–131
Form factor 13, 51, 63, 72, 74, 114
- Gelation 117–132, 200
Gelation dynamics 160–164
Gel point 119, 163
Gel structure 75, 124–126
Gene therapy 252
Gibbs energy of micellization 23–25, 29
Grafted polyelectrolyte 183
Grain growth 139–140
Guinier equation 13
- H-shaped copolymers 31
Halperin model 37, 175, 185
Hard gel 117, 124–126
Hard spheres 14, 16, 51, 105, 124, 162, 188
Heterogeneity mode 159–160
Hockey puck micelle 90
Hot gelation 126
Hydrogels 206–207
Hydrogen bonding 74–75, 79, 87, 126, 127, 206
- Image charge effect 179
Intermicellar interactions 51–52, 158
Internal mode 57, 151–160
Ionically end-capped copolymers 183–184
- Jamming 129
Janus micelles 66, 71, 260
- Langmuir isotherm 16, 223, 226
Large amplitude oscillatory shear (LAOS) 156–157
Layer sliding 156, 158
Leibler model 37–40, 143
Looping entropy 40
Lower critical solution temperature (LCST) 254
Lyotropic mesophase 105–117, 269
- Manning condensation 186
Maxwell-Voigt model 118, 123
Mean field lattice model 115, 147, 191, 234
Membrane protein 263–264
Mesoporous material 269–274
Metal complexation 257–258
Micellar fusion 55–56
Micelle dimensions 27, 28, 33–37, 39, 41–44, 47–50
Micellization kinetics 52–56
Micellization thermodynamics 22–25, 126
Microemulsion 246
Mixed micelles 75–76, 139
Mode-coupling theory 162–163
Monte Carlo simulations 44–45, 149, 234–236
Multiblock ionomer 194
- Nagarajan-Ganesh model 43, 49–50, 244
Nanocage 69
Nanocapsule 263
Nanocasting 270

- Nanodroplet 87–88
Nanoreactor 255–258
Nanotube 260, 264
Nanowire 259–261
Neutron reflectivity 18
Neutron spin echo 59–60
Newtonian flow 120
Nuclear magnetic resonance (NMR) 10–11, 57–60, 164
- Octopus structure 82
Onion micelle 63, 70, 79, 116, 198, 243
Order-disorder transition 106, 132–135
Order-order transition 106, 134, 135–143
Ordering kinetics 139–140
Oscillatory shear 122–123, 150, 152, 154–156
Osmotic brush 173, 185, 191, 221
Ozonolysis 69
- Parallel orientation 150
Partition coefficient 242–243
Pearl necklace 174
Peptosome 265
Percolation transition 52, 119, 162, 253
Perpendicular orientation 150
pH-responsiveness 132, 173, 179–183, 204, 251, 265
Phase cube 110
Photon correlation spectroscopy, see Dynamic light scattering
Pincus regime 173, 191
Pluronic 18–22, 24–27, 32–33, 42–43, 52, 53, 72, 75, 76–78, 86–87, 110–117, 126, 127–128, 131, 139, 146–147, 150–151, 154, 156, 161, 183, 242, 244, 247, 251, 253, 267, 268, 269, 272, 275
Polyampholyte 63, 182
Polydispersity 42
Polyion complex 195–198, 251
Polymer electrolyte 274
Polymersome 83, 87, 261
PRISM theory 146
- Quenched polyelectrolyte 173, 193
- Rheology 11, 117–124
Rod-coil copolymer 66–68, 174, 272
Rod-like micelle 66–68, 71–74, 151–152, 259–261
- Salt effect on micellization 32–33, 127, 182, 184–186, 191–194, 197, 234
Salted brush 163, 185, 221, 225
Scaling theory 33–37
Scanning probe microscopy 11–12
Schizophrenic micellization 179–181
Self-consistent mean field theory 40–43, 51, 136, 141, 143, 146–147, 217–218, 22, 234, 246
Self-diffusion coefficient 11
Shape transition 72–74, 177
Shear alignment 86–87, 149–159
Shear banding 156
Shear melting 158
Shell cross-linked knedel (SCK) 68–71, 231
Slip-stick mechanism 153, 158
Slow release system 250
Small-angle neutron scattering (SANS) 12–14
Small-angle x-ray scattering (SAXS) 12–14
Soft gel 117
Soft lithography 272, 275
Sol-gel transition 119, 126, 127, 130, 135, 255
Solubilization 42, 75, 128, 241–245
Solvent distribution 142–143
Solvent effect on micellization 32
Stabilization 246–247
Static light scattering (SLS) 14–16
Sticky hard sphere model, see Baxter model
Stokes-Einstein equation 9
Stopped flow experiments 52, 54
Stress plateaux 156–157
Stress relaxation 120–122
Structure factor 13–14, 51–52, 72, 114, 119, 120, 134
Styrenic block copolymer 20
Sugar-coated micelle 70, 252–253
Supercritical CO₂ 247
Superstrong segregation 47, 64, 177
Surface activity 21–22
Surface forces experiments 231–234

- Surface micelle 218–219, 221, 224,
226–231, 236
- Surface plasmon resonance 223, 229
- Surface pressure-area isotherm 16, 215–220
- Surface quasi-elastic light scattering 220
- Surface tensiometry 16
- Surface tension 21–22, 178
- Swelling 142
- Switch peptide 204
- Tapered block copolymer 31–32
- Telechelic 4, 60–62, 129–132, 194, 220
definition 4
- Ternary phase diagram 111, 115
- Tethered chains 45, 90–91, 215
- Tetronic 123
- T-jump experiments 52–55
- Thixotropic stress decay 158
- Time-stain separability 122
- Toroidal structure 83, 193
- Trajectory map 106–110, 143
- Transmission electron microscopy (TEM) 7
- Tube inversion test 117, 135
- Tube theory 120
- Tubules 79, 83
- Ultrasonic absorption 55
- Vesicles 68, 79, 83–90, 150–151,
261–268
- Virial coefficient 9, 52, 57, 194
- Viscometry 17
- Viscosity modifier 91
- Vitamin A 207
- Wilhelmy plate 16–17
- Wormlike micelles 64–65, 71–74, 79–80
- X-ray photon correlation spectroscopy
(XPCS) 59
- X-ray reflectivity 17–18
- Y junction 80–81
- Yield stress 11, 117, 120
- Zhulina-Birshtein model 35–37, 50, 175,
185
- Zwitterionic copolymer 181, 183