<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorbance change</td>
<td>375</td>
</tr>
<tr>
<td>Acoustic biosensors</td>
<td>354</td>
</tr>
<tr>
<td>Adhesion layer</td>
<td>173</td>
</tr>
<tr>
<td>Adhesion promoter</td>
<td>178</td>
</tr>
<tr>
<td>Adsorption</td>
<td>371</td>
</tr>
<tr>
<td>Agglomeration</td>
<td>124</td>
</tr>
<tr>
<td>Aggregation</td>
<td>149, 156, 239, 359</td>
</tr>
<tr>
<td>Alkane thiols</td>
<td>278-293</td>
</tr>
<tr>
<td>Alloys</td>
<td>119</td>
</tr>
<tr>
<td>Anisotropic metal structures</td>
<td>376</td>
</tr>
<tr>
<td>Anisotropic particle</td>
<td>336</td>
</tr>
<tr>
<td>Annealed films</td>
<td>237</td>
</tr>
<tr>
<td>Annealing</td>
<td>183, 290</td>
</tr>
<tr>
<td>Anomalous absorption</td>
<td>166</td>
</tr>
<tr>
<td>Anti-biotin sensing</td>
<td>80</td>
</tr>
<tr>
<td>Artificial membranes</td>
<td>154</td>
</tr>
<tr>
<td>Asymmetric stretching</td>
<td>283</td>
</tr>
<tr>
<td>Asymptotic dependence</td>
<td>218</td>
</tr>
<tr>
<td>Atomic force microscopy</td>
<td>12, 158-160, 225, 277, 365</td>
</tr>
<tr>
<td>Au coated Ag</td>
<td>147</td>
</tr>
<tr>
<td>Autoradiography</td>
<td>333</td>
</tr>
<tr>
<td>Back-coupling</td>
<td>320</td>
</tr>
<tr>
<td>Background absorption</td>
<td>168</td>
</tr>
<tr>
<td>Background rejection</td>
<td>396-397</td>
</tr>
<tr>
<td>Baseline stability</td>
<td>373</td>
</tr>
<tr>
<td>Base-pair mismatch</td>
<td>158, 359</td>
</tr>
<tr>
<td>Benzopyrene tetrold</td>
<td>31</td>
</tr>
<tr>
<td>Bimetallic cluster assembly</td>
<td>151</td>
</tr>
<tr>
<td>Bimetallic particles</td>
<td>115-121</td>
</tr>
<tr>
<td>Binding assays</td>
<td>353</td>
</tr>
<tr>
<td>Binding constant</td>
<td>376</td>
</tr>
<tr>
<td>Bioaffinity studies</td>
<td>309, 316</td>
</tr>
<tr>
<td>Biochemical linkers</td>
<td>169</td>
</tr>
<tr>
<td>Biochips</td>
<td>183</td>
</tr>
<tr>
<td>Biological labels</td>
<td>58, 333, 340</td>
</tr>
<tr>
<td>Biomolecular binding</td>
<td>354-355</td>
</tr>
<tr>
<td>Biomolecular interactions</td>
<td>366, 368, 370, 373</td>
</tr>
<tr>
<td>Biomolecular metallization</td>
<td>152</td>
</tr>
<tr>
<td>Biomolecular recognition</td>
<td>135</td>
</tr>
<tr>
<td>Biomolecular templating</td>
<td>163-165</td>
</tr>
<tr>
<td>Biomolecules</td>
<td>164</td>
</tr>
<tr>
<td>Bio-nano-devices</td>
<td>137</td>
</tr>
<tr>
<td>Biotechnology</td>
<td></td>
</tr>
<tr>
<td>Biomolecular binding</td>
<td>354-355</td>
</tr>
<tr>
<td>Biomolecular interactions</td>
<td>366, 368, 370, 373</td>
</tr>
<tr>
<td>Biomolecular metallization</td>
<td>152</td>
</tr>
<tr>
<td>Biomolecular recognition</td>
<td>135</td>
</tr>
<tr>
<td>Biomolecular templating</td>
<td>163-165</td>
</tr>
<tr>
<td>Biomolecules</td>
<td>164</td>
</tr>
<tr>
<td>Bio-self-assembly</td>
<td>164</td>
</tr>
<tr>
<td>Biosensors</td>
<td>75</td>
</tr>
<tr>
<td>Bis(p-sulfonatophenyl)-phenylphosphine</td>
<td>361</td>
</tr>
<tr>
<td>Blue shift</td>
<td>65, 287</td>
</tr>
<tr>
<td>Boltzman constant</td>
<td>363</td>
</tr>
<tr>
<td>Borohydride reduction</td>
<td>3-4</td>
</tr>
<tr>
<td>Brillouin zone structure</td>
<td>311, 314</td>
</tr>
<tr>
<td>Cantilever sensors</td>
<td>159</td>
</tr>
<tr>
<td>Capture molecule</td>
<td>353, 382</td>
</tr>
<tr>
<td>Chance-Prock-Silbey theory</td>
<td>168</td>
</tr>
<tr>
<td>Charge mobility</td>
<td>276</td>
</tr>
</tbody>
</table>
INDEX

Chemisorption, 130, 362
Chip-based nanoSPR, 355
Chromophores, 306, 353
  excitation of, 313-316
  use in fluorescence detection, 316-321
Citrate reduction, 2-3
Cluster chromatography, 161
Cluster ions, 277
Cluster layers, 137, 140, 149, 169
  coating with biomolecules, 156-158
  fabrication methods, 185
  precipitation, 156
  stability, 162
Cluster-cluster aggregates, 154-156
Cluster-emission devices, 192
Cluster-layer enhanced fluorescence, 184
Cluster-quenched fluorescence, 190
Coagulation, 154
Coalescence, 154
Colloid capture assays, 140
Colloid detection protocol, 171
Colloid staining methods, 140
Colloid surface chemistry,
  adsorption of electrophiles, 124-126
  adsorption of nucleophiles, 126-130
  bimetallic particles in, 115-121
  competitive adsorption in, 130-131
  displacement processes in, 130-131
  electron donation in, 109
  Fermi level equilibration in, 122-124
  nano-electrochemistry, 114-115
  overview of, 101
  photoelectron emission in, 111-114
  polymer stabilized clusters in, 109
  positive hole injection in, 109
  pulsed particle formation, 105-106
  radiolytic methods in, 101-103
  redox potential in, 106-108
  reductio pulsed particle formation,
    105-106
  reduction of silver ions, 103-105
  role of particle size in, 106
Colloidal arrays, 156
Colloidal gold, 144
Colloidal metal labels,
  biological applications of, 345-349
  dark-field microscopic designs in,
    341-345
Colloidal metal labels (cont'd)
  overview of, 333-334
  particle characterization, 339
  particle fabrication, 337-339
  surface modification, 340-341
Colloidal sols, 154
Color change, 156
Color shift, 161
Colorimetric biosensor, 360
Competitive adsorption, 130-131
Cone of emission, 392
Conformational change, 156
Conformational disorder, 282
Conjugated oligomers, 276, 293-294
Copper evaporation, 290
Core-shell nanoparticles, 60, 362
Covalent binding, 340
Covalent conjugation, 371
Covalent coupling, 326
Coverage dependence, 233
Cross linking, 177
Crystallinity, 289
Cyclic voltammetry, 277, 291, 296
Dark-field optical microscopy, 333, 341
Debye screening length, 365
Dephasing collisions, 216
Dexter-type transfer, 253
Dichroic filters, 57
Dielectric constant, 208, 355, 382
Dipolar approximation, 356
Dipole-dipole interaction, 13
Displacement process, 130-131
Distance dependence, 230
Distance layer, 169,173,177
DNA coated clusters, 156
DNA hybridization studies, 163, 398-400
  surface plasmon fluorescence spectroscopy in, 321
DNA sequencing, 416-417
Dodecane thiols, 277, 283
Drude collision time, 216
Drude-Lorentz-Sommerfeld theory, 143
Dye-metal separation distance, 314
Electrochemical mixed current theory, 5
Electrochemical plating, 49
Electrochemical sensors, 165
Electroless plating, 8, 49
Electroluminescence, 166
Electromagnetic coupling, 54, 64-66
Electromagnetic enhancement, 224, 359
Electromagnetic field strength, 368
Electron beam lithography, 49-50
Electron beam-induced deposition, 152
Electron donation, 109
Electron oscillation frequency, 65
Electron tunneling, 124
Electron-electron scattering, 251
Electron-hole excitation, 231
Electron-hole pair, 250
Electron-phonon scattering, 251
Electrophiles, adsorption of, 124-126
Electroplating, silver on substrates, 434-435
Electrostatic repulsion, 154, 361
Ellipsometry, 276
End-point assays, 354
Enhanced fluorescence, 180
emission, 315, 410
Enhanced molecular absorption, 229-230
Enhancement factor, 55
Enzyme immunoassays, 353
Epitope specificity, 32
Evanescent field, 385
Evanescent wave, 354
excitation, 306
Excimer fluorescence, 228, 233
Excitation probability, 320
Extinction, 48
change, 375
spectra, 336, 366-367, 369, 372-373
Extrinsic reagent, 353
Fermi level equilibration, 122-124
Fermi resonance coupling, 282
Flow cytometry labels, 58
Flow-immunoassay methods, 161
Fluorescein, 419
Fluorescence, 180
amplification, 180-182
biosensors, 353
detection methods, 25, 354, 386
immunoassays, 354
intrinsic, 415
labels, 354
spectroscopy, 306
Fluorescence quenching, 252, 267-268
theoretical considerations of, 252-255
time resolved spectroscopy, 255-257
Fluorescence resonance energy transfer, 27, 325-326
Fluorescent tryptophan, 415
Fluorophore, 180, 353-354, 386, 405
brightness of, 381
distance dependence, 406
enhanced emission, 411
lifetimes, 413
photostability of, 381, 407, 413
Fluorophore-metal composites, 257
Fluorophore-metallic surface interactions
overview of, 197-198
theory of, 199-216
Förster energy transfer mechanism, 313
Förster separation distance, 314
Förster-type resonant energy transfer, 253
Fourier-transform reflection absorption infrared spectroscopy, 277
Fractal-like silver structures, 439-440
Free-space emission, 391
Frequency-domain intensity decay, 391
Fresnel algorithm, 309
Functionalization, 362
Functionalized colloids, 161-163

Gamma radiation, 101
Gamma-radiolysis, 4
Gauche conformations, 281-282
Gersten-Nitzan model, 253, 263
Gold coated TiO2 colloids
preparation of, 148
Gold colloids, 357
coating with proteins, 157
preparation of, 146
Gold sol, 155
G-values, 102

Homo-transfer, 419
Hybridization studies, 317, 321
DNA, 163, 398-400
oligonucleotide, 359
Hydrodynamic model, 215
Hydrophilicity, 174
Hyper-Raman scattering, 55
Index dipole, 210
Immobilized silver colloids, 425
Immune colloidal techniques, 161
Immunoassays, 353
tags, 58
Immuno-gold silver staining procedure, 333
Immunological tagging, 165
Indocyanine green, 422-424
Intensity of scattered light, 334-335
Interband energy transfer, 142
Interparticle coupling, 359
Intracellular diagnostics, 31
Intrinsic fluorescence, 415
Ion channel gating, 32
Ion scattering spectroscopy, 276
Ion sensing, 32
Iso-electric point, 157
Isotropic melt, 288
Jablonski diagram, 406
Kretschmann configuration, 306-307, 317, 320, 386
Label-free assays, 354
Label-free sensors, 371, 375
Landau damping, 250
Langmuir model, 323
Langmuir-Blodgett deposition, 13
Langmuir-Blodgett films, 231, 239-243
Laplace equation, 217
Lateral repulsion, 365
Layer-by-layer assembly, 13
Au@SiO₂, 13
gold nanoprisms, 15
overview of, 13
Layer-by-layer deposition, 369-370
Legendre differential equations, 207
Lifetime, 405, 413
Light-emitting diodes, 276
Lightning-rod effect, 227
Limit of detection, 82, 326
Lissamine-gold nanoparticle composites, 258-266
Lithographic masks, 156
Localized surface plasmon resonance (cont'd)
colloidal nanoparticles on, 59
controlling parameters in, 53-55
dielectric medium on, 73-75
effect of nanoparticle material, 70
effect of nanoparticle shape, 71
effect of nanoparticle size, 70
electromagnetic fields in, 55-57
fundamental characteristics of, 52
Lycurgus cup, 357
Metal colloids, 136-140, 144, 422
devices, 140-141
Metal evaporations, 276
Metal island films, 50, 58
Metal overlayers, 276
Metal/SAM interactions, 276
Metallic colloids (See Colloidal metal labels)
Metallic luster, 142
Metal-nanoparticle plasmons, 249
Metal-oligomer-metal junctions, 276
MICORIS, 176, 179
Micro-conductivity sensors, 165
Microemulsions, 7, 11
Microlithography, 163
Microtiter plates, 184
Microtubules, 164
Mie formula, 355
Mie plasmons, 180
Mie theory, 2
estimation of extinction, 48
Mie-Gans-Happel theory, 143
Mirror layer, 173
Molecular dipole, 210
Molecular electronic devices, 276
Molecular wires, 276, 293
Mono-molecular surface layer, 149
N,N-dimethylformamide, 7, 11
Nano SPR sensor, 360
Nano-arrays, 163
Nanobiosensors, 77
Nano-cluster based technology, 141-166
atomic force microscopy, 158-160
bio-templating, 163-165
cluster-cluster aggregates, 154-156
Nano-cluster based technology (cont'd)
coating clusters with biochemicals, 156-158
colloid particles and electrodes, 165
electroluminescence, 166
functionalized colloids, 161-163
immune colloid techniques, 161
metal colloids, 144
nano-switches, 151-154
properties of, 141-144
quantum dots, 144
surface plasmon resonance
transduction, 165-166
Nano-clusters, 166
Nanocubes, 362
Nano-distance transduction, 176
Nano-optical devices, 154
Nanoparticle aggregation, 361
Nanoparticle arrays,
applications on sensing, 75, 82
optical characterization of, 67-69
structural characterization of, 68
Nanoparticles
plasmons, 250-252
probe, 359
synthesis of, 140
waveguide, 57
Nanoprisms, 8, 10-11, 362
Nanorods, 8-11, 362
Nanosheells, 359
Nanosphere lithography, 51, 70, 360
Nanostructures,
fabrication of, 48-52
Nano-switches, 151-154
Near-edge x-ray absorption fine
structure spectroscopy, 277
Near-field scanning optical
microscope, 359
applications of, 31-34
fluorescence/topography/compliance
measurements, 40-43
interferometric measurements, 36-40
structure/dynamic measurements, 34-36
fluorescence resonance energy
transfer in, 27-30
future perspectives of, 43-44
non-traditional uses of, 26
overview of, 25
Noble metal colloids,
bioanalytical sensing using, 140-192
development of nanostructures, 13-17
optical properties of, 1
overview of, 1-2
preparation techniques, 2-12, 145-149
silica coating, 5
Noble metal nanoparticle biosensors,
advantages of, 375
applications of, 370-376
design of, 370, 376
detection limits of, 375
future directions of, 376
historical perspectives on, 357-360
implementation of, 360-361
biomolecular interactions, 361, 373
fabrication, 361, 371, 375
modeling of, 376
optical properties of, 355-356, 376
overview of, 353-355
real-time monitoring of, 373
refractive index response, 365
sensing configurations, 358
sensitivity of, 366-370, 375
Noble metal nanoparticles, 59
applications of tunable optical
properties, 57-59, 61
refractive index response, 365
self-assembly on substrate, 362-365
kinetics of, 363-365
optical properties, 365-370
rate of diffusion, 363
signal transduction mechanism, 58
structural homogeneity, 49, 61
synthesis of, 361-362
use in optical data storage, 58
Non-covalent absorption, 340
Nonradiative decay rate, 207-213
Nuclear pore complex, 40
Nucleophiles,
adsorption of, 126-130
Octadecane thiols, 277, 283
Oligo(phenylene ethynylene), 294
Oligonucleotide hybridization, 359
Oligonucleotide ligation assay, 347
One-step-test kits, 169
Optical communication, 57
Optical data storage, 58
OPTICAL DIFFRACTION GRATING, 306
OPTICAL EXTINCTION, 355, 364
OPTICAL FEEDBACK IMAGING, 37
OPTICAL INTENSITY, 311-312
OPTICAL ROBUSTNESS PROTEIN, 156
OPTICAL SENSITIVITY, 376
OPTICAL TUNNELING, 160
ORDER-DISORDER TRANSITION, 287-289
OSCILLATING DIPOLE, 355
OSTWALD RIPENING, 124
OVERCOMPENSATION EFFECT, 13
PARALLEL POLARIZATION, 65
PARTICLE PLASMONS, 250
OF A CLUSTER, 139
PASSIVATION, 296
PEAK PLASMON RESONANT SCATTERING
WAVELENGTH, 336
PEAK SCATTERING WAVELENGTH, 334
PENETRATION DEPTH, 368
PERPENDICULAR POLARIZATION, 65
PHASE TRANSFER AGENT, 6
PHOTODESCONNECTION, 424, 441
PHOTOCATALYTIC DECOMPOSITION, 228
PHOTO-DEPOSITOR SILVER, 426
PHOTODISSOCIATION, 224
PHOTOELECTRON EMISSION, 111-114
PHOTOISOMERIZATION, 243
PHOTOLUMINESCENCE, 144
PHOTON DELocalIZATION, 160
PHOTOStABILITY, 407, 413, 430, 441
PLASMA ETCHING, 174
PLASMON, 226
ABSORPTION BAND, 103, 227
BEHAVIOR, 154
EXTINCTION, 359, 365
PLASMON RESONANCE, 341
BIOLOGICAL APPLICATIONS, 345-349
DARK-FIELD OPTICAL MICROSCOPIC
DETECTION, 341-344
EXPERIMENTAL CONSIDERATIONS, 334
THEORETICAL CONSIDERATIONS, 334
PLASMON-POLARITONS, 142
PLASMON-SAMPLED SURFACE-ENHANCED
RAMAN EXCITATION
SPECTROSCOPY, 86-92
PLATE-BASED BINDING ASSAYS, 354
POINT-OF-CARE DEVICE, 161
POISSON EQUATION, 217-218
POLARIZABILITY, 215
POLYMER METALLIZATION, 276
POLYMER STABILIZED CLUSTERS, 109
POLYMER/METAL INTERFACES, 276
POLYVINYLPYRROLIDONE, 177, 361
POSITIVE HOLE INJECTION, 109
POSITIVE WAVELENGTH SHIFT, 282
PRECIPITATION, 161
PREGNANCY TEST, 357
PROPAGATION CONSTANT, 385
PROTEIN CONCENTRATORS, 174
PROTEIN RECOGNITION, 163
PROTEIN-BOUND STUDIES, 326-328
PROTEIN-LIGAND BINDING, 372
PSUEDO-MELTING PHASE TRANSITION, 289
PULSE RADIOLYSIS, 102
PULSED PARTICLE FORMATION, 105-106
PURPLE OF CASSIUS, 357
QUANTUM DOTS, 144
QUANTUM EFFICIENCY, 235, 263
QUANTUM YIELD, 208, 234, 405, 411-415
QUARTZ CRYSTAL MICROBALANCE, 354
QUENCHING, 230
PROFILE, 314
RADIATION DAMPING, 250
RADIATIONLESS ENERGY TRANSFER, 230
RADIATIVE DECAY RATE, 209-213
RADIATIVE DIPOLE COUPLING, 66, 69
RADIONUCLEIC DECAY ENGINEERING,
APPLICATIONS IN MEDICAL DIAGNOSTICS,
418
DISTANCE DEPENDENCE, 417
EFFECT OF INDOCYANINE GREEN, 422-424
ENHANCED FLUORESCENCE EMISSION,
411-414, 418-422
FRACTAL-LIKE SILVER STRUCTURES, 439
IMMOBILIZED SILVER COLLOIDS, 425
LIFETIMES, 413
OVERVIEW OF, 405-411
PHOTO-DEPOSITION OF SILVER, 426
PHOTOSTABILITY, 407, 413, 430, 441
QUANTUM YIELDS, 411-415
ROLE OF SILVER ISLAND FILMS, 408-
416, 424-425
ROLE OF SILVER NANORODS, 443-445
ROUGHENED SILVER ELECTRODES, 435-436
SELF-QUENCHING, 419
RADIOACTIVE MOIETY, 354
RADIO-IMMUNOASSAY, 353
RADIOISOTOPE, 353
RADIOLYTIC METHODS, 101-103
<table>
<thead>
<tr>
<th>Terms</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raman scattering</td>
<td>224</td>
</tr>
<tr>
<td>Receptor immobilization</td>
<td>371, 373</td>
</tr>
<tr>
<td>Receptor-analyte binding</td>
<td>354</td>
</tr>
<tr>
<td>Receptor-ligand binding assays</td>
<td>353, 371</td>
</tr>
<tr>
<td>Red shift, 13, 65, 251, 264, 366</td>
<td></td>
</tr>
<tr>
<td>Redox potential</td>
<td>106-108</td>
</tr>
<tr>
<td>Red-shifted emission</td>
<td>326</td>
</tr>
<tr>
<td>Reflection interference system</td>
<td>166</td>
</tr>
<tr>
<td>Reflectivity</td>
<td>382, 386</td>
</tr>
<tr>
<td>Refractive index change</td>
<td>355, 365-366, 371, 382</td>
</tr>
<tr>
<td>Refractive index sensitivity</td>
<td>84</td>
</tr>
<tr>
<td>Resonance condition</td>
<td>356, 366</td>
</tr>
<tr>
<td>Resonance energy transfer</td>
<td>405</td>
</tr>
<tr>
<td>Resonance enhanced fluorescence applications, 182-184</td>
<td></td>
</tr>
<tr>
<td>cluster layer fabrication</td>
<td>185</td>
</tr>
<tr>
<td>cluster layers</td>
<td>184</td>
</tr>
<tr>
<td>in microtiter plates</td>
<td>184</td>
</tr>
<tr>
<td>physical principles</td>
<td>180-182</td>
</tr>
<tr>
<td>Resonance tuning</td>
<td>161</td>
</tr>
<tr>
<td>Resonance-frequency shift</td>
<td>160</td>
</tr>
<tr>
<td>Resonant interlayer</td>
<td>183</td>
</tr>
<tr>
<td>Resonant Rayleigh scattering spectroscopy, 84</td>
<td></td>
</tr>
<tr>
<td>Rhodamine B, 422</td>
<td></td>
</tr>
<tr>
<td>Rhodamine-gold nanoparticle composites, 265</td>
<td></td>
</tr>
<tr>
<td>Roughened silver electrodes, 435</td>
<td></td>
</tr>
<tr>
<td>production of, 436</td>
<td></td>
</tr>
<tr>
<td>Ruppin model, 253</td>
<td></td>
</tr>
<tr>
<td>Scanning electron microscopy, 357</td>
<td></td>
</tr>
<tr>
<td>Scanning near-field optical microscope, 160</td>
<td></td>
</tr>
<tr>
<td>Scanning tunneling microscopy, 277</td>
<td></td>
</tr>
<tr>
<td>Scattered evanescent waves, 187</td>
<td></td>
</tr>
<tr>
<td>Schmitt trigger, 152</td>
<td></td>
</tr>
<tr>
<td>Second harmonic generation, 57</td>
<td></td>
</tr>
<tr>
<td>Second-harmonic generation spectroscopy, 277</td>
<td></td>
</tr>
<tr>
<td>Seeding growth, 5</td>
<td></td>
</tr>
<tr>
<td>Self-assembled monolayers, 371, 375</td>
<td></td>
</tr>
<tr>
<td>copper overlayers, 278-299</td>
<td></td>
</tr>
<tr>
<td>overview of, 275-277</td>
<td></td>
</tr>
<tr>
<td>Self-organization process, 156</td>
<td></td>
</tr>
<tr>
<td>Self-quenching, 419</td>
<td></td>
</tr>
<tr>
<td>Sensing volume, 368-371</td>
<td></td>
</tr>
<tr>
<td>Sensor optical response, 366</td>
<td></td>
</tr>
<tr>
<td>Sensor response, 366, 371, 375</td>
<td></td>
</tr>
<tr>
<td>Sequence recognition, 159</td>
<td></td>
</tr>
<tr>
<td>Shell growth, 6</td>
<td></td>
</tr>
<tr>
<td>Signal amplification, 359</td>
<td></td>
</tr>
<tr>
<td>Signal transduction, 140</td>
<td></td>
</tr>
<tr>
<td>mechanism, 58</td>
<td></td>
</tr>
<tr>
<td>Silane coupling agents, 6</td>
<td></td>
</tr>
<tr>
<td>Silane monolayer, 362</td>
<td></td>
</tr>
<tr>
<td>Silanization, 362</td>
<td></td>
</tr>
<tr>
<td>Silver colloid, preparation of, 147</td>
<td></td>
</tr>
<tr>
<td>Silver deposition, 430, 435</td>
<td></td>
</tr>
<tr>
<td>Silver islands, 408-416, 424-425</td>
<td></td>
</tr>
<tr>
<td>Silver nanorods, 443</td>
<td></td>
</tr>
<tr>
<td>absorption spectra, 444</td>
<td></td>
</tr>
<tr>
<td>emission spectra, 445</td>
<td></td>
</tr>
<tr>
<td>rapid deposition, 444</td>
<td></td>
</tr>
<tr>
<td>Silver-lead system, 123</td>
<td></td>
</tr>
<tr>
<td>Single molecule detection, 160</td>
<td></td>
</tr>
<tr>
<td>Sodium borohydride, 3</td>
<td></td>
</tr>
<tr>
<td>Solution phase immunoassay, 360</td>
<td></td>
</tr>
<tr>
<td>Spacer layer, 231</td>
<td></td>
</tr>
<tr>
<td>Spatial sensitivity, 368</td>
<td></td>
</tr>
<tr>
<td>Spectroscopic signature, 283</td>
<td></td>
</tr>
<tr>
<td>Spin coating, of DNA, 178</td>
<td></td>
</tr>
<tr>
<td>Sputtering, 173</td>
<td></td>
</tr>
<tr>
<td>Stability repulsion, 155</td>
<td></td>
</tr>
<tr>
<td>Stabilizing agents, 361</td>
<td></td>
</tr>
<tr>
<td>Standard hybridization, 161</td>
<td></td>
</tr>
<tr>
<td>Static dipolar coupling, 65</td>
<td></td>
</tr>
<tr>
<td>Steric inhibition, 155</td>
<td></td>
</tr>
<tr>
<td>Steric stabilization, 156</td>
<td></td>
</tr>
<tr>
<td>Steric stabilizers, 6</td>
<td></td>
</tr>
<tr>
<td>Stober method, 6</td>
<td></td>
</tr>
<tr>
<td>Stokes shift, 255, 314</td>
<td></td>
</tr>
<tr>
<td>Stokes shifted fluorescence energy, 307</td>
<td></td>
</tr>
<tr>
<td>Stratified medium theory, 168</td>
<td></td>
</tr>
<tr>
<td>Streptavidin sensing, 78</td>
<td></td>
</tr>
<tr>
<td>Streptavidin-biotin binding interaction, 373-375</td>
<td></td>
</tr>
<tr>
<td>Strip test, 161</td>
<td></td>
</tr>
<tr>
<td>Substrate enhancement, 236-239</td>
<td></td>
</tr>
<tr>
<td>Surface acoustic wave, 354</td>
<td></td>
</tr>
<tr>
<td>Surface atom oxidation, 112</td>
<td></td>
</tr>
<tr>
<td>Surface enhanced absorption, 171</td>
<td></td>
</tr>
<tr>
<td>Surface free electrons, 356</td>
<td></td>
</tr>
<tr>
<td>Surface hybridization studies, 321-326</td>
<td></td>
</tr>
<tr>
<td>kinetics of, 322</td>
<td></td>
</tr>
</tbody>
</table>
INDEX

Underpotential deposition, 116
UV photoelectron spectroscopy, 276
Vacuum deposition, 156
Vacuum evaporated films, 237
Vapor deposition, 381
Vapor silanization, 178
X-ray photoelectron spectroscopy, 276, 292