

- actuators, 3, 4, 8
adaptive and responsive textile structures, 226

bio-compatibility, 285
bio-materials, 296–297
bio-processes and products, 5
bio-processing, 254

combat casualty care, 236
cotton, 263–270
coupled mode theory, 152
crosslinked polyols, 85

degradability, 284
degradable thermosets, 287
dimensional memories, 87
distributive measurement systems, 195
down, 78
dynamic moisture transfer, 75

electrically active polymer materials, 8
actuation, 8
artificial muscle, 15
large deformation, 28
nonionic polymer gel, 8
embroidery, 218, 220
enzymatic textile processing, 254, 255–256
excimer laser, 127

Fabry-Perot interferometric sensors, 177
far infra-red radiation ceramics, 60
fibre Bragg grating (FBG), 124, 151, 174
densification, 129
fabrication, 125–127
modulus and hardness, 131, 140
strength, 130, 133
trapped-electron centres, 127
Weibull distribution, 131
fibre optic sensors, 124, 177, 235

germania-doped silica optical fibre, 125
global positioning system, 249
graft membrane, 111

GSM, 249, 250

healthcare and telemedicine, 237
heat-storage and thermoregulated textiles and clothing
development history, 36
fibre spinning, 44
hydrated inorganic salts, 38
latent heat-storage materials, 38
linear chain hydrocarbon, 40
PEG and PTMG, 39
PET-PEG block copolymer, 40
phase change fibres, 41
phase change materials, 65, 248
polyhydric alcohol, 39
properties, 47
sensible heat-storage materials, 38
hollow fibre, 63
hollow fibre membranes, 211, 214
gas separation, 200, 202
materials, 207
resistance model, 204
hydrogel, 93

insulation values, 79
integrated processes, 5
integrated products, 5
IPN, 95, 97

Mach-Zehnder interferometric sensors, 177
measurement effectiveness, 187–191
measurement reliability, 191–195
medical textiles, 221, 291
micro-capsules, 45
milkweed floss, 78
multi-axial strain measurements by embedded FBGs, 184–186

nano-indentor, 131

optical responses of fibre Bragg grating sensors (FBGs) under axial tension, 156–158

- optical responses of fibre Bragg grating sensors (FBGs) under (*cont.*)
bending, 165–166
lateral compression, 161–165
torsion, 158–161
- permeation, 116
- personalized mobile information processing systems, 238
- plasma, 111
- polarization, 152
- poly(acrylic acid), 95, 97
- Polymer optical fibre, 151
- poly(vinyl alcohol), 95, 97
- quality function deployment, 232
- radiation, 110
- reflection/transmission spectra, 153
- reflective index modulation, 127
- sensors, 3, 4, 177, 178
- signal processing, 3, 5
- smart materials and structures, 2
- stimuli-responsive, 93
- shape memory materials, 280–284
- silk, 270–271
- simultaneous measurement of temperature and strain, 181
- single-model optical fibre, 151
- smart textile composites, 174
- snowmobile suit, 246
- sports and athletics, 237
- stimuli-responsive membrane, 109
- temperature and strain coupling, 181
- thermal insulation, 68
- thermal memories, 86
- tissue engineering, 222, 291
scaffolds, 293, 294
textile scaffolds, 298–305
tissue regeneration, 305
- vital signs monitoring systems, 235, 238
- waterproof breathable coatings, 70
- wearable electronics, 246
- wet shrinkage, 88
- wool, 256–263
- zirconium carbide, 61