

Index

a

agglomerates 20
alumina ceramics 138
aluminum 47
aspect ratio 1
atomic force microscopy 26

b

ball milling 20
bath composition 73
bending 25
biocompatibility 217

c

carbon nanotubes 1
carbon nanotubes
– Raman spectroscopy 21
– synthesis of 5
carbonaceous species 17
carboxyl (-COOH) groups 19
catalyst 5
ceramic particulates 44
chemical vapor deposition 8
chirality 4
clusters 46
coating 48
CO disproportionation 16
colloidal processing 140
conductive network 171
consolidation 52
copper 65
crack bridging 133
crack deflection 133

d

deformation 25
dielectric constant 172

disintegrated melt deposition 61
ductility 57

e

electrical conductivity 171
electric arc discharge 5
electrodeposition 71
electromagnetic interference (EMI) 169
elongation 29
extrusion 45

f

fiber 1
flexibility 46
fracture toughness 1
friction, coefficient of 119
functional groups
– carboxyl (-COOH) groups 19

g

grain refinement 58
graphene 3
– multi-walled carbon nanotubes 3
– single-walled carbon nanotubes 3

h

hardness 105
heat dissipation 89
heterocoagulation 145
homogeneous dispersion 47
hot isostatic pressing 45
hot pressing 44
human bones 217
hydrocarbon gases 10
hydroxyapatite 217

i

interface
– interfacial bonding 47

I

laser ablation 7
load transfer 47, 103

M

magnesium 61
MD simulation 25
mechanical alloying 53
melt infiltration 45
metal-matrix composites 1
micromechanical model 103
microparticles 9
molecular-level mixing 47

N

nanocomposites 2
nanoindentation 105

O

Orowan stress 117

P

patent 17
percolation 169
powder metallurgy 44
pull-out of nanotubes 109
purification process 19

R

Raman spectroscopy 21
reinforcement 1
relative density 142

S

silicon carbide 157

silicon nitride 157
single edge notched beam 185
spark plasma sintering 67
stiffness 1
strain 25
strength 1
strengthening mechanism 103
stress intensity factor 185
SWNT, tensile elongation 29
synthesis 5

T

tension 45
thermal conductivity 29
thermal expansion, coefficient of 91
thermal management 45
thermal spraying 47
three-point bending 105
transmission electron micrograph 3

V

van der Waals forces 3
vapor grown carbon nanofibers 4
Vickers indentation fracture test
186

W

wear 119
wetting 47

Y

Young's modulus 25

Z

zeta potential 141