JMR Keyword List

SYNTHESIS & PROCESSING

annealing
attrition
biological synthesis
biomimetic
bonding
brazing
carbonization
casting
chemical reaction
chemical substitution
chemical synthesis
chemical vapor deposition (CVD)
cluster assembly
cold isostatic pressing (CIP)
cold working
combinatorial synthesis
combustion synthesis
cryomilling
crystal growth
densification
directional solidification
electrochemical synthesis
electrodisposition
electron irradiation
environmentally benign
epitaxy
extrusion
firing
flame synthesis
flux growth
forging
freeze drying
hot isostatic pressing (HIP)
hot pressing
hydrogenation
hydrothermal
infiltration
ink-jet printing
intercalation
ion plating
ion-beam assisted deposition
ion-beam processing
laser ablation
laser annealing
laser decomposition
laser-induced reaction
liquid-phase epitaxy (LPE)
lithography
machining
mechanical alloying
metalorganic deposition
microwave heating
microwave sintering
molecular beam epitaxy (MBE)
neutron irradiation
nucleation & growth
oxidation/annealing
phase equilibria
phase transformation
photochemical
physical vapor deposition (PVD)
plasma deposition
plasma-enhanced CVD (PECVD)
plating
polymerization
powder metallurgy
powder processing
pulsed laser deposition (PLD)
purification
pyrolysis
rapid solidification
reactive ball milling
reactive ion etching
screen printing
self-assembly
self-propagating high-temperature synthesis(SHS)
shock loading
sintering
sol-gel
solution deposition
solvent casting
spray deposition
spray pyrolysis
spray-drying
sputtering
surface reaction
welding
zone melting
zone refining

JMR Keyword List

COMPOSITION & MICROSTRUCTURE

Material Type

alloy
biological
blend
bone
cellular
cement
ceramic
cermet
composite
fullerene
geologic
glass
intercalated
intermetallic alloys
metal
metallic glass
molten salt
organic
organometallic
polymer
quasicrystal
semiconductor
semimetal
superconductor

Features

additives
chemical composition
crystallographic structure
dislocations
grain boundaries
grain size
interatomic arrangements
macromolecular structure
microstructure
molecular weight
morphology
porosity
second phases
texture

Determination Technique

ab initio calculation
acoustic emission
activation analysis
Auger electron spectroscopy (AES)
calorimetry
computer simulation
critical exponent analysis
deep level transient spectroscopy (DLTS)
differential thermal analysis (DTA)
electron energy loss spectroscopy (EELS)
electron microprobe
electron spin resonance
extended x-ray absorption fine structure(EXAFS)
gas chromatography
infrared (IR) spectroscopy
ion beam analysis
ion scattering spectroscopy (ISS)
mass spectroscopy
Mössbauer effect
neutron scattering
nuclear magnetic resonance (NMR)
optical metallography
optical spectroscopy
photovoltaic spectroscopy
porosimetry
pseudopotential calculation
Raman spectroscopy
reflection high-energy electron diffraction(RHEED)
scanning acoustic microscopy (SAM)
scanning electron microscopy (SEM)
scanning transmission electron microscopy (STEM)
scanning probe microscopy (SPM)
secondary ion mass spectroscopy (SIMS)
theory
thermogravimetric analysis (TGA)
transmission electron microscopy (TEM)
x-ray diffraction (XRD)
x-ray fluorescence
x-ray photoelectron spectroscopy (XPS)
x-ray reflectivity
x-ray tomography

JMR Keyword List

PROPERTY STUDIED

ablation
absorption
acoustic
adhesion
adsorption
agglomeration
aging
biodegradation
chemical reactivity
corrosion
Debye temperature
defects
dielectric properties
diffusion
ductility
elastic properties
electrical properties
electromigration
electron channeling
electron emission
electronic structure
electron-phonon interactions
embrittlement
fatigue
ferroelectricity
field emission
fracto-emission
fracture
grain growth
Hall effect
hardness
indentation
internal friction
ion channeling
ion-solid interactons
kinetics
luminescence
magnetic properties
mechanical properties
metal-insulator transition
microimpact
microindentation
nanoindentation
optical properties
passivation
photoconductivity
photoreflectance
piezoresponse
radiation effects
specific heat
stability
strength
stress/strain relationship
superplasticity
surface chemistry
thermal conductivity
thermal stresses
thermally stimulated current
thermodynamic properties
thermoelectricity
toughness
tribology
vapor pressure

JMR Keyword List

PERFORMANCE

Material Form

aerogel
amorphous
cellular
coating
colloidal
crystal
fiber
filamentary
film
fractal
layered
liquid
microspheres
mixture
nanofiber
nanoparticle
nanoscale
paste
polycrystal
powder
slurry
thin film
wire

Functionality

absorbent
adhesive
barrier layer
biomedical
catalytic
dielectric
dispersant
electronic material
energetic material
energy-storage
environmentally protective
ferroelectric
insulator
ion-exchange material
ionic conductor
joining
laser
lubricant
magnetic
metallic conductor
microelectrical mechanical (MEMS)
microelectronics
optical
optoelectronic
packaging
photovoltaic
piezoelectric
sensor
structural
transparent conductor
waste management