INTERMETALLICS

including complex structural and functional alloys

AUTHOR INFORMATION PACK

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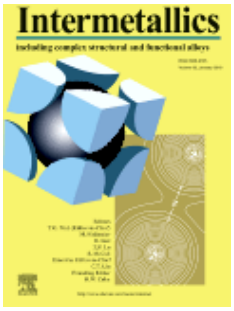

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Keywords for Intermetallics

keywThe keywords for Intermetallics are separated into seven categories:

A. MATERIAL TYPE
B. ASPECT OR PROPERTY STUDIED
C. SYNTHESIS AND PROCESSING
D. STRUCTURAL FEATURES
E. THEORY
F. CHARACTERIZATION
G. APPLICATION

A. TYPES OF MATERIAL

functional alloys (magnetic, electrical, biomedical)
intermetallics (aluminides, silicides)
high–entropy alloys
metallic glasses (or amorphous metals)
nanocrystalline metals
porous materials
shape–memory alloys
thin films and multilayers

B. ASPECT OR PROPERTY STUDIED

age-hardening
alloy design
anelasticity
anisotropy
annealing
atomic packing density
biocompatibility
bonding
brittleness and ductility
cavitation
constitutive equation
corrosion
crack propagation
creep (properties and mechanisms)
crystal chemistry
cyclic plasticity
deformation map
diffusion
density functional theory
dislocation structure
dispersion strengthening
dynamic recrystallization
elastic properties
electrochemistry
electronic structure
electrical properties
embrittlement
equal channel angular pressing/extrusion
erosion

fatigue resistance and crack growth
fracture
fracture toughness
glass forming ability
glass transition and crystallization
grain boundary diffusion
grain boundary embrittlement
grain boundary segregation
grain boundary sliding
hydrides
hydrogen embrittlement
hydrogen storage
in situ
indentation size effect
internal friction
inhomogeneous deformation
irradiation effects
magnetic properties
martensitic transformation
mechanical properties
microalloying
nanocrystalline structure
nucleation and growth
order/disorder transformation
oxidation
phase transformation (crystallographic aspects kinetics and mechanisms)
plastic deformation mechanisms
phase stability
residual stresses
self–assembly
semi–solid
shape–memory effects (including superelasticity)
shear band
slip system
solid–solution hardening
strain–aging
stress relaxation
superconducting properties
superplasticity
surface properties
texture (macro– and micro–; including ODFs) (see also 'grain–boundary
character distribution©, Section D)
thermal properties
thermal stability
thermoelectric properties
thermodynamic properties
toughness
tribological properties
twinning
viscosity
void formation and growth
work–hardening
yield stress

C. PROCESSING (INCLUDING SYNTHESIS)

casting (including segregation)
coatings
crystal growth
electroplating
focused ion beam machining
friction stir processing

functionally graded structure
heat treatment
hot isostatic pressing
isothermal forging
joining (welding, brazing, diffusion–bonding, etc.)
laser processing and cladding
mechanical alloying and milling
microwave processing
nanocrystals (see 'nanostructured materials', Section A)
near–net–shape manufacturing
spray forming
thermoplastic forming
powder metallurgy (including sintering and consolidation)
purification
rapid solidification
reaction synthesis
recrystallization and recovery (including grain growth)
severe plastic deformation
single–crystal growth (see 'crystal growth', this section)
superplastic forming
surface finishing
thermomechanical processing (including extrusion, rolling and forging)
deposition (including electron beam, sputtering, and electrodeposition)
ultrasonic processing
welding (see 'joining', this section)

D. STRUCTURAL FEATURES

antiphase domain
dislocation geometry and arrangement (including superdislocation)
point defect (vacancy, anti–site, interstitial, impurity)
planar faults
plastic deformation unit
free volume
grain boundary
martensitic structure
microstructure
interfaces
segregation
site occupancy

E. THEORY

ab–initio calculations
molecular dynamics simulation
Monte Carlo simulation
finite–element modeling
defects: theory
electronic structure, calculation
mechanical properties, theory
multiscale
pair correlation function
phase field modeling
phase stability, prediction
ordering energies
physical properties
yield behavior

F. CHARACTERIZATION

(to be indexed only where the technique is the main topic of the paper)
analysis, chemical
atom probe
atomic force microscopy

Auger electron spectroscopy
chemical map
differential scanning calorimetry
differential thermal analysis
diffraction/sacterring (electron, neutron and X–ray)
digital image correlation
electrochemical characterization
electron backscatter diffraction
electron microprobe
electron microscopy, scanning
electron microscopy, transmission
extended X–ray absorption fine structure
field ion microscopy
high–speed photography
internal stress measurement
ion–beam methods
mechanical testing
metallographic techniques
microscopy, various
nanoindentation
orientation imaging microscopy
residual stress measurement
scanning tunneling electron microscopy
secondary ion mass spectrometry
spectroscopic methods, various
pole figure
tomography
trace element analysis
x–ray tomography

G. APPLICATION

aero–engine components
aerospace structures
automotive uses, including engines (and other transportation uses)
biomedical
catalysis
corrosion– and erosion–resistant applications
damping
dental
ecosystem
energy systems (including energy conversion)
environmental
furnace, including heating elements
hydrogen storage and permeation
MicroElectroMechanical (MEMS) and NanoElectroMechanical NEMS
Sensor
shape–memory alloy applications (actuators, couplings, etc.)
superconducting
thermoelectric power generation
wear–resistant

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