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**Keywords for Intermetallics**

The 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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