JOURNAL OF ALLOYS AND COMPOUNDS
An Interdisciplinary Journal of Materials Science and Solid–State Chemistry and Physics

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DESCRIPTION

General Perspective

- The Journal of Alloys and Compounds is an international peer-reviewed medium for the publication of work on materials comprising compounds as well as alloys. Its great strength lies in the diversity of disciplines which it encompasses, drawing together results from materials science, physical metallurgy, solid-state chemistry and physics. The interdisciplinary nature of the journal is evident in many subject areas. Experimental and theoretical approaches to materials problems require an active interplay between a variety of traditional and novel scientific disciplines.

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Solid-state chemistry, flux synthesis, chalcogenides, nonlinear optical materials, thermoelectrics, single crystal X-ray diffraction, powder X-ray diffraction, semiconductors

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High temperature materials, Mechanical properties, Phase equilibria, Thermal analysis

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Light metals and alloys; Metal-matrix composites; Phase diagrams; Phase transformations; Solidification.

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Phase Diagrams; Measurement of Thermochemical Properties; Solid State Ionics; Chemical Sensors and Sensor Materials; Hydrogen in Metals; Chemical Synthesis of Inorganic Compounds

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Low Dimensional Structures and Devices, Nanotechnoloy and Nanoscience, Self-Assembled Semiconductor Nanostructures, Semiconductor Materials, III-V Electronic and Optoelectronic Devices, Photovoltaic Materials and Devices, Molecular Beam Epitaxy, Deep Level Transient Spectroscopy

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Hydrogen research, Hydrogen storage, Metal hydrides, Gas-solid interactions, Materials characterization, Neutron diffraction, Materials synthesis

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Texture of Mg alloys, Texture induced deformation behaviour, Metal forming, Application of light alloys

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Solid-state phase transformations: thermodynamic and kinetic analyses; rapid solidification; metal-activated sintering and Microstructural control in ni(co)-based superalloys, heat-resistance steels, superconducting materials, lead-free solders and ti-al intermetallic compounds.

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Metallic glasses; Bulk metallic glasses; Magnetic and magnetoelectric materials; Magnetoelastic processes; sensors and devices; Physics and chemistry of surfaces and interfaces; Nanoparticles and nanowire arrays; Hydrogen storage materials.

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Structure-property relationships, ZnO Based Materials, Metal Oxide Gas sensors, Glass and Glass-Ceramics, Metal oxide thin films, XAS and XPS spectroscopies

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Hydrogen storage materials and hydrides, Anode and cathode materials for rechargeable batteries, Supercapacitor, Magnetic materials, Photocatalytic materials

Vitalij Pecharsky, lowa State University Department of Materials Science and Engineering, Ames, Iowa, IA 50011-3020, United States

Structure-property relationships; Intermetallic and rare earth compounds. Electronic, magnetic and caloric materials. Mechanochemistry.

Hari Srikanth, University of South Florida Department of Physics, 4202 E Fowler Ave, Tampa, Florida, FL 33620, United States

Magnetism and magnetic materials, Nanostructured materials for energy and biomedical applications, Structure-property correlations in functional materials, Strongly correlated systems

Wieslaw Strek, W Trzebiatowski Institute of Low Temperature and Structural Research of the Polish Academy of Sciences, Okólna str. 2, 50-422, Wroclaw, Poland

Rare earth ions and transition metal ions, doped sol-gel materials, photonic structures, nanomaterials, nanoceramics and crystals.

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Chemical Solution deposition (CSD, ink jet printing) of ceramics. Materials of interest : superconducting perovskites and buffer layers for production of coated conductors, titanates for (photo)catalytic and battery applications, low-E coatings; Formulation of environmentally friendly based inks. Use of bottom-up chemical synthesis approaches (hydrothermal, microwave-assisted, hot injection) for the synthesis of ceramic nanoparticles/suspensions.

Olga Volkova, Lomonosov Moscow State University Department of Low-Temperature Physics and Superconductivity, Leninskie Gory 1, 119991, Moskva, Russian Federation

Magnetism, Low dimensional magnetism, Functional materials, Oxides, Superconductors

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Experimental Condensed Matter: Magnetism, Magnetic Materials, Spintronics, and Spin Caloritronics

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Semiconductor, Transition Metal-based composites, Electrode materials for energy storage and conversion

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The keywords for the Journal of Alloys and Compounds are separated into four categories:

A. Types of Material

actinide alloys and compounds
amorphous materials  
ceramics  
clusters  
coating materials  
composite materials  
data storage materials  
disordered systems  
electrode materials  
energy storage materials  
ferroelectrics  
fuel cells  
fullerenes  
half metals  
heterojunctions  
high-temperature alloys  
high-Tc superconductors  
hydrogen absorbing materials  
inorganic materials  
insulators  
intermetallics  
interstitial alloys  
liquid crystals  
magnetic films and multilayers  
magnetically ordered materials  
metal hydrides  
metallic glasses  
metal matrix composites  
metals and alloys  
nanostructured materials  
nitride materials  
nuclear reactor materials  
optical materials  
oxide materials  
permanent magnets  
phosphers  
polymers, elastomers, and plastics  
quantum wells  
quasicrystals  
rare earth alloys and compounds  
semiconductors  
spin glasses  
superconductors  
surfaces and interfaces  
thin films  
transition metal alloys and compounds  
thermoelectric materials  

B. Preparation and Processing  
amorphisation  
chemical synthesis  
crystal growth  
gas-solid reactions  
laser processing  
liquid-solid reactions  
precipitation  
powder metallurgy  
mechanical alloying  
mechnochemical processing  
nanofabrications  
rapid-solidification, quenching  
sintering
sol-gel processes
solid state reactions
vapor deposition

C. Phenomena
atomic scale structure
acoustic properties
anisotropy
anharmonicity
catalysis
composition fluctuations
crystal structure
corrosion
crystal and ligand fields
crystal binding and equation of state
cyclotron resonance
dielectric response
diffusion
dislocations and disclinations
domain structure
domain structure
elasticity
electrical transport
electrochemical reactions
electromotive force, EMF
electron-electron interactions
electron-phonon interactions
electronic band structure
electronic properties
enthalpy
entropy
exchange and superexchange
fractional quantum Hall effect
flux pinning and creep
galvanomagnetic effects
grain boundaries
heat capacity
heat conduction
heavy fermions
hyperfine interactions
ionic conduction
impurities in semiconductors
kondo effect
kinetics
magentisation
magnetocaloric
magnetoresistance
magnetostriction
magneto-volume effects
mechanical properties
microstructure
noise
optical properties
order-disorder effects
oxidation
phase diagrams
phase transitions
phonons
photoconductivity and photovoltaics
piezoelectricity, electrostrition
preferential site ordering
point defects
quantum Hall effect
quantum localization
radiation effects
recombination and trapping
shape memory
spin dynamics
spin-orbit effects
thermal expansion
thermodynamic properties
thermoelectric
thermochemistry
tunnelling
vacancy formation
valence fluctuations

D. Experimental and Theoretical Methods
atomic force microscopy, AFM
atom, molecule, and ion impact
calorimetry
computer simulations
elastic light scattering
electrochemical impedance spectroscopy
electron emission spectroscopies
electron energy loss spectroscopy
electron paramagnetic resonance
EXAFS, NEXAFS, SEXAFS
high-pressure
high magnetic fields
inelastic light scattering
inelastic neutron scattering
light absorption and reflection
luminescence
magnetic measurements
Mössbauer spectroscopy
metallography
molecular dynamics simulations
muon spectroscopies
neutron diffraction
nonlinear optics
nuclear resonances
optical spectroscopy
perturbed angular correlations, PAC
photoelectron spectroscopies
positron spectroscopies
Rutherford backscattering, RBS
scanning electron microscopy, SEM
scanning tunnelling microscopy, STM
strain, high pressure
surface electron diffraction (LEED, RHEED)
synchrotron radiation
thermal analysis
thermodynamic modeling
time-resolved optical spectroscopies
transmission electron microscopy, TEM
X-ray diffraction
X-ray and gamma-ray spectroscopies
Ultrasonics

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