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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Microstructures of alloys, Phase transformations in alloys, Electron microscopy (TEM/STEM), X-ray/ electron diffraction, Crystallography of alloys/inorganic compounds

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Phenomena involving the interplay between magnetism and structure: magnetovolume effects (invar, anti-invar), magnetostructural transitions (Heuslers, anti-perovskites, manganites, and crystallographic properties at interfaces separating different magnetic configurations (shell-ferromagnets); functionalities relevant to refrigeration, energy-conversion, non-volatile magnetic memory, permanent magnets.

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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

Dmitry G. Eskin, Brunel University Brunel Centre for Advanced Solidification Technology, UB8 3PH, Uxbridge, United Kingdom
Light metals and alloys; Metal-matrix composites; Phase diagrams; Phase transformations; Solidification.

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Functional Ceramics, Nano Materials, Thin Films

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Thiagarajan Gnanasekaran, Indira Gandhi Centre for Atomic Research, Indira Gandhi Centre for Atomic Research, Kalpakkam, 603102, Kalpakkam, India
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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Mohamed Henini, University of Nottingham School of Physics and Astronomy, University Park, NG7 2RD, Nottingham, United Kingdom

Low Dimensional Structures and Devices, Nanotechnology 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

Jacques Huot, University of Quebec in Trois Rivieres Hydrogen Research Institute, 3351 Boulevard Des Forges (P.O. Box 500), Trois Rivieres, G9A 5H7, Quebec, Canada

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

Li Jin, Shanghai Jiao Tong University School of Materials Science and Engineering, 1954 Hua Shan Road, 2000030, Shanghai, China

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

Yongchang Liu, Tianjin University, 300072, Tianjin, China

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.

Nicoleta Lupu, National Institute of Research and Development for Technical Physics, Mangeron Av 47, 6600, Iași, Romania

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

Valmor Mastelaro, University of Sao Paulo Campus of Sao Carlos, Sao Carlos, Brazil

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

Hongge Pan, Zhejiang University School of Materials Science and Engineering, 38 Zheda Road, Hangzhou, China

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

Vitalij Pecharsky, Iowa 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. Mechanoochemistry.

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.

Isabel Van Driessche, Ghent University Department of Chemistry, Krijgslaan 281 (Building S3), 9000, Gent, Belgium

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

Colorado State University Department of Physics, 1875 Campus Delivery, Fort Collins, Colorado, CO 80523, United States

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

Renbing Wu, Fudan University Department of Material Science, 200433, Shanghai, China

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

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**Keywords**
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
mechanochemical processing
nanofabrications
rapid-solidification, quenching
sintering
sol-gel processes
solid state reactiona
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
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
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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