



JOURNAL OF ALLOYS AND COMPOUNDS

An Interdisciplinary Journal of Materials Science and Solid-State Chemistry and Physics

AUTHOR INFORMATION PACK

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ISSN: 0925-8388

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

Livio Battezzati, Dipart. di Chimica IFM, Università di Torino, via Pietro Giuria 7, 10125, Torino, Italy

Thermodynamics of alloys, phase transformations in alloys, solidification, non-equilibrium processing, metallic glasses, metastable compounds, quasicrystals, high temperature alloys, high entropy alloys, nanoporous metals by alloy corrosion. metal oxidation.

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Solid State Physics; Magnetism; Physical Metallurgy;

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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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Magnetism; magnetic nanoparticles and nanostructured magnetic materials; transition metal oxides

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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

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

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Phase diagrams; Thermodynamic properties; Intermetallics and their properties; Inorganic Compounds; Lead-free Soldering

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

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

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Li ion materials, Hydrogen storage materials, hydrides

Wieslaw Strek, Inst. of Low Temperature and Structure Research, Polish Academy of Sciences in Wroclaw, Okólna str. 2, PL-50-950, Wrocław, Poland

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

Isabel Van Driessche, Dept. of Inorganic and Physical Chemistry, Universiteit Gent, 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, Fac. of Physics; Low temperature Physics and Superconductivity Dept., Low temperature Physics and Superconductivity Dept., M.V. Lomonosov Moscow State University, Leninskie Gory 1, 119991, Moscow, Russian Federation

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Nanomaterials for energy storage. Rechargeable Batteries. Hydrogen as an Energy Carrier. New Intermetallics and Carbon Materials for Hydrogen Storage and Battery Applications. Synchrotron and neutron powder diffraction. Crystal structures of novel materials.

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Self-propagating High-temperature Synthesis (SHS), Transition metal borides and nitrides, Intermetallics, MAX phases, Thermite Reaction

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Examples:

Reference to a journal publication:

[1] J. van der Geer, J.A.J. Hanraads, R.A. Lupton, The art of writing a scientific article, *J. Sci. Commun.* 163 (2010) 51–59.

Reference to a book:

[2] W. Strunk Jr., E.B. White, *The Elements of Style*, fourth ed., Longman, New York, 2000.

Reference to a chapter in an edited book:

[3] G.R. Mettam, L.B. Adams, How to prepare an electronic version of your article, in: B.S. Jones, R.Z. Smith (Eds.), *Introduction to the Electronic Age*, E-Publishing Inc., New York, 2009, pp. 281–304.

Reference to a website:

[4] Cancer Research UK, Cancer statistics reports for the UK. <http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/>, 2003 (accessed 13 March 2003).

Reference to a dataset:

[dataset] [5] M. Oguro, S. Imahiro, S. Saito, T. Nakashizuka, Mortality data for Japanese oak wilt disease and surrounding forest compositions, *Mendeley Data*, v1, 2015. <https://doi.org/10.17632/xwj98nb39r.1>.

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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-T_c 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 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
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
magnetisation
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, electrostriction
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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