Ferroelectricity Newsletter

A quarterly update on what's happening in the field of ferroelectricity

Volume 8, Number 2 Spring 2000

FOCUS ON ADVANCED MATERIALS RESEARCH

Coming back on track with the timely publication of the ***Ferroelectricity Newsletter*** explains the short interval between the last issue and this one. With the Summer issue, due at the end of July, we will have caught up and be again on our regular schedule.

On pages 2–12 you will find details about the **Ninth European Meeting on Ferroelectricity (EMF-9)**, held at the Zofin Palace in Prague, Czech Republic, from 12–16 July 1999. As the guest editors of the proceedings mentioned, there were fewer presentations on liquid crystals than their importance would justify because this topic is dealt with in well-established separate international meetings. In this respect we refer you to the Fall 1999 issue of the ***Ferroelectricity Newsletter***, which featured the **International Conference on Ferroelectric Liquid Crystals**, held in Darmstadt, Germany, a few weeks after EMF-9.

In the section PUBLICATION NEWS we bring information about four publications, three of them new releases:

The ***2000 Materials Research Society Publications Catalog***, containing more than 600 books, plus video tapes, databases, and journals, is now available free of charge. See page 13 for details.

Comprehensive Composite Materials, the first major reference providing coverage of the entire field of composite materials has been published by Elsevier Science and is available at a special 20 percent discount price if ordered before the end of June. (See page 13.)

Methods in Materials Research: A Current Protocols Publication (see page 14) is advertized as a unique subscription publication that combines the best features of an encyclopedic reference with a journal, thus responding effectively to the challenges arising from the diversity of materials research.

Properties, Processing and Application of Gallium Nitride and Related Semiconductors, published by INSPEC, condenses and refines the recent explosion of research findings on GaN into an ordered array of knowledge useful for both academics and engineers. (See page 15.)

To round out the update on advanced materials, please turn to pages 17–19, featuring the international congress **Materials Week** in Munich, Germany.

Rudolf Panholzer
Editor-in-Chief

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Volume 8, Number 2
Spring 2000

The *Ferroelectricity Newsletter* is published quarterly by the Naval Postgraduate School, Space Systems Academic Group, Monterey, California, with the support of the Office of Naval Research (ONR).

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EMF-9 PAPERS

THE NINTH EUROPEAN MEETING ON FERROELECTRICITY (EMF-9)

The Ninth European Meeting on Ferroelectricity (EMF-9) was held in Prague (Zofin Palace), Czech Republic, from 12–16 July 1999. Volumes 236 - 241 (2000) of ***Ferroelectrics*** *contain the proceedings of this conference.*

Guest editors ***M. Glogarová, I. Gregora, J. Hlinka, M. Pavel, J. Petzelt, and P. Vanek*** *write in their editorial: The main organizer was the Department of Dielectrics, Institute of Physics, of the Academy of Sciences of the Czech Republic. Altogether 311 participants from 28 countries attended the conference, among them 62 participants from 10 non-European countries. These are about the same numbers as for the previous EMF-8 in Nijmegen. Many more scientists – 163, to be exact, half of them from Russia – had preregistered but could not participate, mainly because of financial reasons. Sixty speakers were exempted from fees, and 154 participants from less well-to-do countries and 46 students paid reduced registration fees. Gordon & Breach, who offered the proceedings for all participants free of charge, sponsored the meeting.*

The Program Committee had scheduled five plenary lectures (40 min.) and 39 invited talks (30 min.) in two parallel sessions. All of them were actually realized; three of the plenary and 21 of the invited talks are published in the proceedings. Furthermore, 45 oral presentations (20 min.) were selected of the submitted abstracts. Of these, 43 talks were presented in two sessions and 27 are published in the proceedings. Out of the other 324 abstracts published in the abstracts book, 261 were presented in poster form in three sessions – only those posters were accepted where at least one author was present – and 178 are published in the proceedings. Nine papers were rejected and 110 were not submitted or their authors did not supply the revised text.

The contributions at the conference were divided into 20 groups according to their subject. In the proceedings the number of sections for the 177 accepted papers is reduced to 15. The short oral and poster contributions are given according to the alphabetical order of the presenting author.

Concerning the number of papers, the most popular topics are still thin films and relaxors. At EMF-9, more attention was paid to domain and domain structures mainly owing to the applications in nonlinear optics. Unfortunately, most of the talks relevant to this topic are not presented in the proceedings. Progress has also been made in the fundamental theoretical understanding of ideal bulk ferroelectricity. On the other hand, the behavior of doped crystals (particularly of incipient ferroelectrics), relaxors, as well as thin films is far from being understood quantitatively. Liquid crystals, despite their certainly comparable importance, are not so much represented. This is obviously a consequence of a well-established separate series of international meetings on ferroelectric liquid crystals.

On Tuesday evening, a very lively round table discussion on relaxors took place (moderators W. Kleemann and S. B. Vakhrushev) which was attended by many participants and lasted late into the night with the conclusion that many more studies are needed.

A meeting of the International Advisory Board was held during the conference. At the meeting Professor Robert Blinc, former chairman of the Board, resigned and Professor Wolfgang Kleemann (University of Duisburg) was elected new chairman. Several changes in the membership were also approved (the body has now 34 members from 17 countries) and it was decided to organize the next meeting, EMF-10, in Cambridge in 2003,chaired by E. Salje and J. F. Scott.

The following is a list of topics and authors of the presentations as published in the proceedings.

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PLENARY SPEAKERS

Two-Dimensional Ferroelectrics
Fridkin V.M. Ducharme S., Bune A.V., Palto S.P., Yudin S.G., Blinov L.M.

Neutron Scattering Studies of Incommensurate Systems
Currat R.

Bioferroelectricity in Models of Voltage-Dependent Ion Channels
Leuchtag H.R.

INVITED SPEAKERS

Scanning Force Microscopy and Near-Field Scanning Optical Microscopy of Ferrolectric and Ferroelastic Domain Walls
Eng. L.M., Güntherodt H.-J.

First-Principles Simulations of Ferroelectric Oxides
Postnikov A.V., Eglitis R.I., Caciuc V., Borstel G.

Probabilistic Basic for the Cole-Cole Relaxation Law
Weron K., Klauzer A.

Theory of Nonlinear Response
Ishibashi Y.

The Effect of Domains on Spectral Anomalies of $SrTiO_3$ below the Structural Transition
Arzel L., Hehlen B., Currat R., Hennion B., Saint-Paul M., Courtens E.

Displacive vs. Order-Disorder in Structural Phase Transitions
Pérez-Mato J.M. Ivantchev S., Garcia A., Etxebarria I.

Lattice Dynamics and Relaxation Effects in Ferroelectrics of $(Sn,Pb)_2P_2(S,Se)_6$ Systems
Vysochanskii Yu. M., Drobnich A. V.

Para-Ferro Phase Coexistence in DKDP Crystals

Shur V.Ya., Rumyantsev E.L., Nikolaeva E.V., Shishkin E.I., Batchko R.G.,
Miller G.D., Fejer M.M., Byer R.L.

Regular Ferroelectric Domain Array in Lithium Niobate Crystals for Nonlinear Optic Applications

Lattice Dynamics of BCCD
Hlinka J.

Dynamics of Aperiodic Crystals
Janssen T.

Ferroelectric, Glassy, and Relaxor States in PLZT Ceramics and Related Compounds
Farhi R., El Marssi M., Cleveland R., Kosec M., Malic B.

Pressure Effect of the Proton Glass $Rb_{1-x}(NH_4)_xH_2PO_4$: a Neutron Study
Moussa F., Courtens E.

Slow Dynamics in Supercooled Liquids and Plastically Crystalline Solids
Benkhof S., Blochowicz T., Kudlik A., Tschirwitz C., Rössler E.

Random Field Based Theory of the Relaxor Ferroelectrics
Stephanovich V.

Dielectric Properties of Ferroelectric Powders and Microcomposites
Rychetsky I., Petzelt J.

A Novel PVDF Thin-Film Photopyroelectric Thermal-Wave Interferometry
Mandelis A., Wang C.

Ferroelectric Memories Today
Scott J.

Pyroelectric Ceramics and Thin Films for Uncooled Thermal Imaging
Whatmore R. W., Watton R.

Defects in Ferroelectric and Antiferroelectric Liquid Crystals
Lej_ek L.

Order-Disorder Phase Transitions in Silicates and Oxides: Recent Observations of Strain Coupling
Redfern S.A.T., Harrison R. J.

ADVANCES IN THEORY

Polarizability Induced Cooperative Proton Ordering, Coexistence of Order/Disorder and Displacive Dynamics and Isotope Effects in Hydrogen-Bonded Ferroelectrics
Bussmann-Holder A., Dalal N.

Li-Doping Effect on the Energy Structure of $KTaO_3$
Tupitsyn I., Deineka A., Trepakov V., Jastrabik L., Kapphan S.

Elastically Hinged Molecule Model for Computer Simulation of Incommensurate Phase in Crystals
Dmitriev S.V., Abe K., Shigenari T.

First-Principles Study of Structural Instabilities in Hexagonal Barium Titanate: Coupling between the Soft

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Optical and the Acoustic Modes
Íniguez J., García A., Pérez-Mato J.M.

Microscopic Fields in Polarized Insulating Crystals
Kvyatkovskii O.E.

Order–Disorder, Local Structure and Precursor Effects in $BaTiO_3$
Tinte S., Stachiotti M.G., Sepliarsky M., Migoni R.L., Rodriguez C.O.

First-Principles Investigation of $SrBi_2Ta_2O_9$
Stachiotti M.G., Rodriguez C.O., Ambrosch-Draxl C., Christensen N.E.

Chemical Bond in Ferroelectric Perovskites
Tkacz-Smiech K., Kolezynski A., Ptak W.S.

On the Origin of Ferroelectricity in $PbTiO_3$
Turik A.V., Khasabov A.G.

First-Principles Study of Ferroelasticity in $CaCl_2$ and As_2O_5
Válgoma J.A., Pérez-Mato J.M., García A.

Polaron and Charge Transfer Vibronic Exciton Phenomena in Ferroelectrics
Vikhnin V.S., Kapphan S., Liu H., Jia W., Trepakov V., Jastrabik L.

PHASE TRANSITIONS

Calorimetric, Optical and Transmission Electron Microscopy Studies on Ferroelectric/Ferroelastic $Ni_3B_7O_{13}Cl$ Boracite
Castellanos-Guzmán A.G., Reyes-Gómez J., Czank M., Kumar A., Singh G., Tivary V. S., Wadhawan V.K.

On the Succesive Phase Transitions in $RbHSeO_4$ and NH_4HSeO_4 Crystals
Czapla Z., Dacko S., Guilbert L.

Calorimetric Study of the Tricritical Point of the Ferroelastic Crystal $KMn_{1-x}Ca_xF_3$
Gallardo M.C., Romero F.J., Hayward S.A., Jiménez J., del Cerro J.

Pressure Effect on the Transition Temperature in $(CH_3)_2NH_2H_2AsO_4$
Hatori J., Yamada T., Shikanai F., Komukae M., Osaka T.

Multistage Transition of Perovskite-Type Ferroelectrics Seen through "mK-Stabilized Cell"
Kojima A. Koyama S., Yoshimura Y., Iwasaki H., Ken-ichi T.

The Change of Tensor Properties at Ferroic Phase Transitions
Kopsky V.

Low-Teperature Spontaneous Polarization
Koval V., Alemany C.E.

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Przeslawski J.

Thermodynamic Properties at Phase Transition of $Pb(Zr, Sn, Ti)O_3$ Solid Solutions
Fuith A., Kabelka H., Birks E., Shebanovs L., Sternberg A.

Anomalous Change of Surplus Entropy in the Overcritical Region of MAPCB-MAPBB System
Strukov B.A., Gorshkov S.N., Shnaidshtein I.V., Arkhangelskaya S.V., Poprawski R., Mroz J.

Vanishing of Order-Disorder Type Phase Transition in DKDP at High Pressure
Tokunaga M., Endo S., Sawada T., Tsukawake T., Deguchi K.

The Isolated Point on the Concentration-Temperature Phase Diagram of $K_2Cd_{2x}Mn_{2(1-x)}(SO_4)_3$ Crystals
Vlokh R., Vlokh O., Kityk A., Skab I., Girnyk I., Czapla Z., Kosturek B., Dacko S.

The Temperature Isotropic Point Inside Ferroelectric Phase of $Rb_2Cd_2(SO_4)_3$ Crystals
Vlokh R., Skab I., Guzandrov A., Mogylyak I., Smagliy S., Uesu Yo.

Birefringence Investigations of the $Sn_2P_2(Se_xS_{1-x})_6$ Uniaxial Ferroelectrics Behavior Near the Lifshitz Point
Vysochanskii Yu. M., Mitrovcij V.V., Grabar A.A., Perechinskii S.I., Motrja S.F.

Thermal Expansions of Ferroelectric Rb_2ZnCl_4 Yamaguchi T., Shimizu F.

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Transitions in Some Iron Sulfate and Iron Chloride Compounds
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X-Ray Diffraction and NMR Studies on the Crystal Structures of MABB and MABA at Room Temperature
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New Features of the Morphotropic Phase Boundary in the $Pb(Zr_{1-x}Ti_x)O_3$ Systems
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X-Ray Study of Extremely Slow Transition in $CsZnPO_4$ Crystal
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Structural Reasons for the High Dielectric Anisotropy of Tungsten Bronze-Like Dielectrics
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Pb-Induced Temperature Stabilization of High Dielectric Constant in Barium Neodymium Titanates
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Microwave Dielectric Properties of the Ordered and Disordered $Pb(Sc_{1/2}Ta_{1/2})O_3$ Ceramics
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Stochastic Resonance in Ferroelectric Triglycine Sulfate
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Investigations of the Dynamical Unipolarity of DTGS Crystals by Means of Harmonic Analysis of the Switching Current
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Dielectric and Magnetic Relaxation of the Quantum Nanomagnet Mn_{12} - Acetate
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Evolution of Nonequilibrium States of Nonuniform Modulated Structures in Ferroelectrics
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Relaxations in New Ferroelectric Tantalates with Tetragonal Tungsten Bronze Structure
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Kinetics of Reorientation Ferroelectric Polarisation in PZT Bulk Ceramics and Thin Films
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Improvement on Microwave Dielectric Properties of $Ba(Mg_{1/3}Ta_{2/3})O_3$ Materials Prepared via a Two-Step Process
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Phase Transitions and Dielectric Properties of Hexagonal $KniCl_3$-type Antiferromagnets
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Dielectric Anomaly Involving Magnetic Phase Transition in a Hexagonal Antiferromagnet $RbCoBr_3$
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Chaotic Oscillations in Non-Linear Circuit Containing Ferroelectric Crystal with Defects
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Phase Relations and Dielectric Properties of Modified Ceramics in the System $PbZrO_3$ - $Pb(Mg_{0.5}W_{0.5})O_3$
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Microwave Dielectric Properties of the $Ag_{1-x}Li_xNbO_3$ ($x = 0 \div 0.06$) Ceramics
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Dielectric Spectroscopy of the Antiferroelectric $PbHfO_3$
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Dielectric Characterization of SBN Single-Crystal Fibers and Non-Doped and La Doped Ceramics

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Dielectric and Phase Transitional Properties of A_2BX_4-Type Halides (A=K,Rb,Tl; B=Zn,Co; X=Br,I)
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Correlation between Pyroelectric Properties and Dielectric Behaviour in Ferroelectric Polymers
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Polarization Fluctuation in Pure $SrTiO_3$
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Acoustic Properties of the Complex Thiosulphate $(NH_4)_9[Cu(S_2O_3)_4]Br_2$
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Bending Behavior of Functionally Gradient Materials
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Discrimination of Second Order Nonlinear Coefficients of Piezoelectric Ceramics. A Measurement Method
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Analytic Solutions for the Partial Coherence of Electromagnetic Radiation Propagating Through Electrooptic Ceramics: the Chaotic Phase Screen Model
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Experimental Photorefractive Self-Focusing of a Single Nanosecond Laser Pulse in $Bi_{12}TiO_{20}$
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The Extra Brillouin Doublets and Central Peak of $KTaO_3$: Second Sound vs. Two-Phonon Difference Scattering
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Raman Spectroscopy of Bismuth Layer Structured Ferroelectrics
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Kuzel P., Dvorák V., Moch P.

Time-Resolved Terahertz Transmission Spectroscopy of Dielectrics
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Temperature Study of The Elastic Properties of Glycinium Phosphite and Deuterated Glycinium Phosphite Crystals by Brillouin Scattering
Lapsa K., Drozdowski M., Ziobrowski P., Szczepanska L.

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Raman Scattering and X-Ray Data in the Region of Ferroelastic Phase Transition to Monoclinic Phase in $KSc(MoO_4)_2$
Nesterenko N.M., Fomin V.I., Peschanskii A.V., Mitkevich V.V.

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Micro-Raman Scattering Spectra of Ferroelectric Semiconductor $Zn_{1-x}Li_xO$
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Far-Infrared Study and Lattice Dynamics Simulation of Cs_2HgBr_4 Crystals
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Order-Disorder Transitions and Structural Relaxation Phenomena in Crystals with Hydrogen Bonds
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Nonlinear Susceptibility of $SrTiO_3$:Ca
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Cu- and Fe-Doping in Properties of $KTaO_3$ and $KTaO_3$:Li Crystals
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Li Depth Profile Anomaly after Radio-Frequency Hydrogen Plasma Processing of Single Crystal $LiNbO_3$
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PUBLICATION NEWS

2000 MRS PUBLICATIONS CATALOG

The ***2000 Materials Research Society Publications Catalog***, containing more than 600 books, plus video tapes, databases, and journals–all exploring interdisciplinary research on advanced materials–is now available. The new catalog features:

- **More than 50 new proceedings volumes** from the 1999 MRS Spring and Fall Meetings
- The new ***Proceedings of the 12th International Zeolite Conference***. This four-volume, 3360-page proceedings set is one of the largest collections on zeolite science ever assembled.
- The newest addition to the MRS Conference Proceedings Series on advanced metallization in integrated circuit applications, ***Advanced Metallization Conference in 1998 (AMC–1998)***
- Information on **new online access to the *Journal of Materials Research (JMR)***

The catalog is organized by topical categories, including biomedical materials, catalysts, ceramics and composites, computational methods, electronic materials and processing, education, glasses and insulators, materials characterization, metals and alloys, novel processing/applications, nuclear waste management, polymers, sensors, and more. A Title Index and a Series Index listing all proceedings from MRS-sponsored symposia since Fall 1994 are also included for easy reference.

To receive a free copy of the 84-page catalog, please contact the Materials Research Society, Customer Services Department :

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COMPREHENSIVE COMPOSITE MATERIALS

This first major reference providing coverage of the entire field was published in March 2000 and is available at a special 20 percent discount price if ordered before the end of June 2000. According to the Editors-in-Chief Anthony Kelly and Carl Zweben, ***Comprehensive Composite Materials*** aims to provide a full coverage of the subject of composites 40 years after the discovery, or rather invention, of the first modern very stiff fibers, namely boron. This major work is published in six extensive print volumes, together with an online version, providing a unique central reference source for scientists and technologists in the fields of composites research and application. It covers key aspects of naturally occurring and synthetic composite materials, including history, reinforcements, matrix materials, mechanical properties, physical properties, theory, structural design, structural analysis, manufacturing processes, quality assurance, test methods, applications, recycling and disposal.

Volumes and Volume Editors

Volume 1

Fiber Reinforcements and General Theory of Composites

T.-W. Chu, Center for Composite Materials, University of Delaware, Newark, USA

Volume 2

Polymer Matrix Composites

R. Talreja, School of Aerospace Engineering, Georgia Institute of Technology, Atlanta, USA
J.-A.E. Manson, Swiss Federal Institute of Technology, EPFL, Lausanne, Switzerland

Volume 3

Metal Matrix Composites

T.W. Clyne, Department of Materials Science and Metallurgy, University of Cambridge, UK

PUBLICATION NEWS

Volume 4

Carbon/Carbon, Cement, and Ceramic Matrix Composites

R. Warren, Division of Engineering Materials, Lulea University of Technology, Sweden

Volume 5

Test Methods, Nondestructive Evaluation, and Smart Composites

L. Carlsson, Department of Mechanical Engineering, Florida Atlantic University, Boca Raton, USA
R.L. Crane, Materials Directorate US Air Force Wright Laboratory, Wright Patterson AFB, USA
K. Uchino, International Center for Actuators and Transducers, Penn State University, USA

Volume 6

Design and Applications

M.G. Bader, School of Mechanical and Materials Engineering, University of Surrey, UK
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METHODS IN MATERIALS RESEARCH

A Current Protocols Publication

Methods in Materials Research (MMR) is a unique subscription publication that provides not only comprehensive coverage, but regular updates to keep pace with this ever-changing field plus an Electronic Roadmap to guide you to the most appropriate materials characterization technique. This revolutionary new publication effectively responds to the challenges arising from the diversity of materials research–a field that depends on a wide array of characterization techniques from several disciplines of science and engineering. Among the methods covered are:

- General vacuum techniques
- X-ray powder diffraction
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Each unit covering an individual measuring method, written by an expert in that method, starts with a summary of the properties measured and a comparative overview of the technique with respect to related techniques. Next, the fundamental underlying theoretical concepts and the implementation of the method are presented and examples of actual data, tables of important parameters or constants, background material and instrumentation descriptions are provided. MMR is a unique "living reference." It combines the best features of an encyclopedic reference with a journal. No other materials methods publicaation boasts all these features.

Editor-in-chief: **Elton N. Kaufmann**, Argonne National Laboratory, USA

Website: **www.wiley.com/cp/mmr**

PUBLICATION NEWS

Properties, Processing and Applications of
GALLIUM NITRIDE AND RELATED SEMICONDUCTORS
Edited by J.H. Edgar *(Kansas State University, USA)*, S. Strite *(Uniphase Laser Enterprise, Switzerland)*, I. Akasaki, H. Amano, and C. Wetzel *(Meijo University, Japan)*
emis Datareviews Series Nr. 23, an INSPEC publication

Research on GaN is propelled by recent breakthroughs in the development of blue-green lazers which utilize its properties. Moreover, the improved understanding of GaN is leading to the utilization in other optoelectronic and microelectronic devices. The literature on GaN and the related semiconductors (AlN, InN, and ternaries) is now increasing exponentially as researchers race to grow, characterize, and utilize them. To deal with this explosion of research findings, the editors have commissioned leading specialists to condense and refine them into an ordered array of knowledge useful to both academics and engineers working on the growth, characterization, processing, and application of GaN.

Gallium Nitride and Related Semiconductors

- provides perspective and insight in highly specialized areas
- brings succinct targeted reviews in the form of self-contained modules
- is refereed: 120 researchers checked the input for accuracy and relevance
- features structured presentation and deep indexing for convenient look-up
- gives latest specialized understanding of bulk, film, and surface properties
- provides expert guidance to over 3000 references
- has some 600 tables, graphs, diagrams, and photographs fully integrated with the text.

Topics
Each of the topics is covered by a number of self-contained modules (Datareviews, typically 6 pages) covering specialized sub-topics.

- Structural, mechanical, and thermal propertiess of III-V nitrides *(4 modules)*
- AlN: Electrical, electronic, and optical properties *(4 modules)*
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- InN: Electrical, electronic, and optical properties *(5 modules)*
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- Band structure of group III nitrides *(9 modules)*
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- Bulk crystal growth of GaN and related compounds *(3 modules)*
- Epitaxial growth of GaN and related compounds *(10 modules)*
- Ion implantation of GaN and related compounds *(4 modules)*
- Etching of GaN and related compounds *(3 modules)*
- Material interfaces with GaN andd related compounds *(3 modules)*
- Strained GaInN and quantum wells *(5 modules)*
- GaN-based LEDs *(5 modules)*
- GaN-based transistors *(4 modules)*
- GaN-based lasers and other devices *(8 modules)*

The full contents listing, with titles and authors of the Datareviews, can be seen on the website

www.iee.org.uk/publish/books/emis.html

UPCOMING MEETINGS

3rd (8) International Seminar on Ferroelastics Physics [ISFP-3(8)]
11–14 September 2000
Voronezh State Technical University, Voronezh, Russia

The conference is the third international and the eighth all-Russian in a series of triennial meetings. The first conference was held in Bologoe (Russia) in 1978, followed by Voronezh (Russia) in 1982, Kharkov (Ukraine) in 1985, Dniepropetrovsk (Ukraine) in 1988, Uzhgorod (Ukraine) in 1991, Voronezh (Russia) in 1994, and Kazan (Tatarstan) in 1997.

The main goal is to bring together scientists, engineers, and students active in the field of ferroelastics physics and related topics to present and discuss their recent and advanced developments in this area.

The program will consist of plenary lectures, as well as oral and poster contributions. The proceedings will be published in special volumes of ***Ferroelectrics*** (in English) and ***Izvestija RAN, Ser. Fiz*** (in Russian).

Topics

- Phase transitions
- Lattice dynamics and soft modes
- Structure and crystal growth
- Domains and domain boundaries
- Acoustic properties
- Optical properties
- Superionic conductivity
- Ferroelasticity and superconductivity
- Incommensurate phases
- Disordered and glassy systems
- Applications

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UPCOMING MEETINGS

Materials Week
25–28 September 2000
Munich, Germany

Materials Week, the international congress on advanced materials, their processes and applications, to be held in conjunction with the exhibition **Materialica**, looks back upon its very successful predecessor meetings Werkstoffwoche 98 and Euromat 99 which have strengthened the reputaion of Munich as a premier European materials place. Materials Week sets out to become the most comprehensive European event to demonstrate the wide range of the interdisciplanry performance of materials.

The conference program is essentially focused on applications of materials with high innovative potential. At the same time, fundamental approaches and processing related aspects for unconventional materials are addressed.

Materials Week is structured into 15 major topics including 59 symposia. The lectures – short papers of a duration of 20 minutes and keynote papers of double that duration – will be offered in parallel sessions which treat a subject up to a maximum of two days. Plenary sessions with lecturers highly reputed in their field will open each day. The posters will be presented during the two days of the respective symposium and in poster sessions on two evenings, Monday and Wednesday. The metal related subjects preferably have been considered for Monday and Tuesday, whereas nonmetallic subjects are offered on Wednesday and Thursday.

Symposia

A. Materials for Information Technology (Wed/Thu)
- Ferroelectric memories (FRAM), *Rainer Waser, Forschungszentrum Jülich, D*
- Magnetic semiconductors and hybrid structures, *Jo de Boeck, IMEC, Leuven, B*
- Scanning probe techniques in information technology, *Hans Josef Hug, Universität Basel, CH*
- Organic display technology, *Paul Seidler, IBM, Rüschlikon, CH*
- Materials development for microelectronic devices, *Robert Danzer, Montanuniversität Leoben, A*

B. Materials for Transportation Technology (Mon/Tue)
- Arospace, *Yann Barbaux, Aéromatra, Suresnes, F*
- Automotive, *Elke Hombergsmeier, DaimlerChrysler, München, D*
- Rail, ships, *Thomas Edwards, DaimlerChrysler Rail Systems, Berlin, D*
- Noise and vibration control, *André Preumont, Université Libre de Bruxelles, B*

C. Materials for Electric Power Generation and Conversion (Mon/Tue)
- Fuel cells and renewable energy systems, *Rudolf Henne, Deutsches Zentrum für Luft- & Raumfahrt, Stuttgart, D*
- Materiala nd coating development for turbomachinery, *Brendon R. Scarlin, ABB Alston Power, Baden, CH*
- Materials behavior and life time prediction of high-temperature components, *Derek Allen, ABB Alston Power, Leicester, UK*
- Joining and repair of advanced high-temperature materials, *Aidan Kennedy, SIFCO Turbine Composites, Cork, IRE*
- Advanced casting technologies, *Robert F. Singer, Universität Erlangen, D*

D. Material for Medical Engineering (Wed/Thu)
- Biomaterials for soft tissue repair, *Horst Dieter Becker, Chirurgische Universitätsklinik Tübingen, D*
- Biomaterials in bone contact, *Lutz Claes, Universitätsklinikum Ulm, D*
- Biomaterials in contact with blood, *Jörg Vienken, Fresenius Medical Care Deutschland, Bad Homburg, D*
- Biomaterials in tissue engineering, *Martin Dauner, Zentrum für Biomaterialien und Organersatz, Denkendorf, D*

UPCOMING MEETINGS

E. Materials for Buildings and Structures (Wed/Thu)
- Corrosion and corrosion prevention of steel in concrete, *Kalliopi Aligizaki, The Pennsylvania State University, USA*
- Moisture and ion transport in porous building materials, *Hartwig M. Künzel, Fraunhofer Institut für Bauphysik, Holzkirchen, D*
- Numerical modeling of properties of building materials, *Volker Slowik, Hochschule für Technik, Wirtschaft und Kultur, Leipzig, D*
- Surface technology of cement-based materials, *Andreas Gerdes, ETH Zürich, CH*

H. Metals (Mon/Tue)
- Al and Ti alloys, *Jean Gregory, Technische Universität München, D*
- Intermetallics and superalloys, *Young-Won Kim, UES Inc., Dayton, USA*
- MMC and metallic foams, *Hans Peter Degischer, Technische Universität Wien, A*
- Metastable materials, Reza Yavari, Institut National Polytechnique de Grenoble, F

I. Ceramics (WEd/Thur)
- Materials Design, *Frank Riley, University of Leeds, UK*
- Modeling and simulation, *Hermann Riedel, Fraunhofer Institut für Werkstoffmechanik, Freiburg, D*
- Process development, *Thierry Cartier, SPCTS-UMR, Limoges, F*
- Rapid prototyping, *Alain Bernard, Association Française de Prototypage Rapide, Montrouge, F*

K. Polymers (Wed/Thur)
- Thermoplastics, *Burghard Schmitt, Süddeutsches Kunststoff-Zentrum, Würzburg, D*
- Composites, *Gerhard Ziegmann, Technische Universität Clausthal-Zellerfeld, D*
- Functional polymers, *Brigitte Voit, Institu für Polymerwerkstoffe, Dresden, D*
- Modeling/simulation and design in plastics, *Ernst Schmachtenberg, Universität Essen, D*

L. Interface Controlled Materials (Wed/Thu)
- Modeling nanostructured systems, *Dieter Wolf, Argonne National Laboratory, USA*
- Relationship between microstructure and properties of nanocrystallites and/or nanostructured materials, *Akihisa Inoue, Tohuko University, J*
- Structural characterization of nanocrystallites and/or nanostructured materials, *A.R. Thölén, Chalmers University of Technology, Göteborg, S*
- Synthesis of nanocrystallites and materials assembled from nanometer-sized clusters and/or molecules, *Uwe Erb, University of Toronto, CAN*
- Technological applications, *Ke Lu, Chinese Academy of Science, Shenyang, PRC*

M. Biology Inspired Materials Processing (Wed/Thu)
- Advanced biomaterials in medicine, *Peter Fratzl, Montanuniversität Leoben, A*
- Biomimetic processing of structural materials, *Peter Greil, Universität Erlangen, D*
- Biomolecular nanotechnology, *Wolfgang Pompe, Technische Universität Dresden, D*
- DNA-based new materials, *Yoshio Okahata, Tokio Institut of Technology, Yokohama,, J*

N. Nano/Microtechnology (Mon/Tue)
- Micro-/nanostructured devices, *Lars Montelius, University of Lund, S*
- Nanoscale thin film systems, *Fred Bijkerk, Institute for Plasma Physics, Nieuwegein, NL*

UPCOMING MEETINGS

S. Surface Engineering (Mon–Thu)
- Advanced deposition technologies, *Johannes Strümpfe, Von Ardenne Anlagentechnik GmbH, Dresden, D*
- Optical coatings, *Marten Walter, Schott, Main, D*
- Surface engineering for plastic materials, *T.E.G. Daenen, Philips PMF Eindhoven, NL*
- Tribological coatings, *Dieter-Wolf Münz, Sheffield University, UK*

T. Joining (Mon/Tue)
- Active brazing and soldering, *Wolfgang Tillmann, Hilti, Schaan, Fl*
- Brazing with focused energy input, *Caroline Radscheit, VW AG, Wolfsburg, D*
- Joining and repair of advanced high-temperature materials, *Aidan Kennedy, SIFCO Turbine Composites, Cork, IRE*
- Joining in microsystem engineering, *Mathias Nowottnick, Fraunhofer Institut für Zuverlässigkeit und Mikrointegration, Berlin, D*
- Joining of materials for light-weight design, *Manfred Boretius, WWL Listermann, Mauren, FL*

U. Simulation, Characterization (Mon–Thu)
- Advanced nano- and microcharacterization methods, *Horst Vehoff, Universität Saarbrücken, D*
- Simulation across the scales, *Yves Brechet, Laboratoire de Thermodynamique et Physico-Chimie Metallurgique, Saint Martin d'Hères, F*
- Texture and anisotropy, *Francis Wagner, Université de Metz, F*

V. Reliability (Mon–Thu)
- Testing microsystems, *Bernd Michel, Fraunhofer Institut für Zuverlässigkeit und Mikrointegration, Berlin, D*
- High-temperature testing, *Stuart R. Holdsworth, ABB Alstrom, Rugby, UK*
- Transferability of materials data for fatigue designing components, *Cetin M. Sonsino, Fraunhofer Institut für Betriebsfestigkeit, Darmstadt, D*
- Nondestructive testing, *Anton Erhard, Bundesanstalt für Materialforschung und -Prüfung, Berlin, D*

Materialica

This international trade fair for innovative materials, held in conjunction with Materials Week, offers an extensive, interdisciplinary overview. It establishes the link between science and industrial application, research and product development. Special shows include:
- Rapid World – methods and materials for time to market
- Surface World – the European market for surface engineering
- Light Metal World – a first-class platform for magnesium, aluminium, titanium, and light metal matrix composites
- Plastic Composites World – a cornucopia of new product ideas
- Automotive World – the meeting point of suppliers and producers
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MG Magnesium 2000

The international conference **Magnesium Alloys and Their Applications** will be held in parallel to the **Materials Week** on Wednesday and Thursday. A four-day registration includes the attendance of the Magnesium conference.

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Contact for Materials Week

www.materialsweek.org

CALENDAR OF EVENTS 2000

Jun 19-20	•	MRS Workshop on Transparent Conducting Oxides (TCOs), Denver, Colorado, USA (see *Ferroelectricity Newsletter,* Vol. 8, No. 1, p. 14)
Jul 3-5	•	8th International Meeting on Chemical Sensors, Basel, Switzerland (see *Ferroelectricity Newsletter,* Vol. 7, No. 4, p. 18)
Jul 30-Aug 2	•	12th IEEE International Symposium on the Application of Ferroelectrics (ISAF 2000), Honolulu, Hawaii, USA (see *Ferroelectricity Newsletter,* Vol. 8, No. 1, p. 14)
Aug 13-18	•	12th American Conference on Crystal Growth and Epitaxy (ACCGE-12), Vail, Colorado, USA (see *Ferroelectricity Newsletter,* Vol. 8, No. 1, p. 15)
Aug 27-30	•	5th European Conference on the Application of Polar Dielectrics (ECAPD-5), Jurmala, Latvia (see *Ferroelectricity Newsletter,* Vol. 7, No. 3, p. 17)
Sep 3-6	•	Electroceramics VII, Portoroz, Slovenia (see *Ferroelectricity Newsletter,* Vol. 7, No. 3, p. 18)
Sep 11-14	•	3rd (8) International Seminar on Ferroelastics Physics (ISFP-3(8), Voronezh, Russia (see p. 16)
Sep 25-28	•	Materials Week, International Congress on Advanced Materials, Their Processes and Applications, Munich, Germany (see p. 17)
Nov 27-Dec 1	•	MRS 2000 Fall Meeting, Boston, Massachusetts, USA. Contact: www.mrs.org
Dec 3-6	•	Session on"Tunable Microwave Devices and Circuits," Asia Pacific Microwave Conference (APMC 2000), Sydney, Australia. Contact: gsubrama@engr.udayton.edu
Dec 12-15	•	3rd Asian Meeting on Ferroelectrics (AMF-3), Hong Kong, China (see *Ferroelectricity Newsletter,* Vol. 7, No. 3, p. 19)

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