

Table of Contents

Preface

Photoelectrochemical Measurements on Cathodically Electrodeposited Films of Cadmium and Zinc Chalcogenide Compounds	1
M. Bouroushian and T. Kosanovic	
Structural Modifications in Thin Films Caused by Gamma Radiation	13
K. Arshak, O. Korostynska and J. Henry	
The Atomic-Scale Interaction of Bioactive Glasses with Simulated Body Fluid	21
L.J. Skipper, F.E. Sowrey, D.M. Pickup, R.J. Newport, K.O. Drake, Z.H. Lin, M.E. Smith, P. Saravanapavan and L.L. Hench	
Ultrafast Optical Properties and Two-Photon Absorption of New Copolymers with Linear or Tri-Branched Structure	27
J. Mi, R. Zhu, G. You, B. Li, W.M. Liu, S. Qian, F. Meng and T. He	
Corrosion Study of Concrete Using PGNAA Technique	33
A.A. Naqvi, M.M. Nagadi and O.S.B. Al-Amoudi	
Optical Activity of Deuterated Analog of L-Arginine Phosphate Single Crystals	43
J. Herreros-Cedrés, C. Hernández-Rodríguez and R. Guerrero-Lemus	
Detection Properties of CdZnTe Semiconductor for Diagnostic X-Ray Spectroscopic Applications	53
M.B. Freitas, F.H.M. Medeiros and E.M. Yoshimura	
Electroluminescence from GaInAsP/InP VCSEL	59
A. Ulug and M.T. Karabulut	
Field Emission Properties of Nanocrystalline and Amorphous Silicon Carbon Nitride Prepared from Microwave Plasma Chemical Vapor Deposition	65
W.J. Cheng, J.C. Jiang, Y. Zhang, D.Z. Shen and H.S. Zhu	
Synthesis of Crystalline Carbon Nitride by Microwave Plasma Chemical Vapor Deposition	71
J.C. Jiang, W.J. Cheng, Y. Zhang, H.S. Zhu and D.Z. Shen	
Temperature of Formation Studies for LiMn_{1.5}Ni_{0.5}O₄ Using X-Ray Diffraction	77
A. Mat, M.Z.A. Yahya, M.A. Sulaiman, R. Puteh and A.K. Arof	
Site Preference Occupation of Ni and V in Fe₃Al-Based Alloys	81
D. Fuks, S. Dorfman, V. Liubich, L. Kutsenko and H. Mehrer	
Measurements of Zeta Potential of Poly(Tetrafluoroethylene) Foils	89
R. Šoster, K. Stana-Kleinschek, M. Brumen and V. Ribitsch	
Solid Ionic Conductors Based on Salted Chitosan - Fatty Acid Plasticizer Systems	95
M.Z.A. Yahya, R. Puteh and A.K. Arof	
The Effects of Partially Substituting Manganese with Copper in LiMn₂O₄ Cathodic Material	101
N. Kamarulzaman, W.J. Basirun and A.K. Arof	
Manganese Oxide Photodeposited onto Titanium Dioxide as a New Environmental Catalyst	117
A. Tateoka, Y. Sekine, T. Tsuda and T. Ohashi	
Characteristics of Corona-Charged PET Sandwich Electrets	123
L.S. Tai, Y.W. Wong, Y.M. Poon and F.G. Shin	
Electron Beam-Induced Nano-Deposition Using a Transmission Electron Microscope	129
M. Shimojo, K. Mitsuishi, M. Tanaka, M. Song and K. Furuya	
An Experimental Study on the Inhomogeneities of Aluminum Foams Measuring the Thermal Conductivity by Using the Transient Plane Source Method	133
J.A. Reglero, M.A. Rodríguez-Pérez, D. Lehnhus, M. Windmann, J.A. de Saja and A. Fernández	
Metal-Assisted Chemical Etching of Multicrystalline Silicon in HF/Na₂S₂O₈ Produces Porous Silicon	139
T. Hadjersi, N. Gabouze, A. Ababou, M. Boumaour, W. Chergui, H. Cheraga, S. Belhouse and A. Djeghri	
Ultraviolet Induced Thermoluminescence in Gadolinium-Doped Zirconium Oxide Films	145
J. Azorín, T. Rivera, C. Furetta and A. Sánchez-Rodríguez	
Silicon Oxynitride ECR-PECVD Films for Integrated Optics	149
P.L. Pernas, E. Ruiz, J. Garrido, J. Piqueras, F. Paszti, A. Climent-Font, G. Lifante and E. Cantelar	

The Electromagnetic Wave Absorbing Characteristics of MnZn Ferrite-TPU Composite Materials	
C. Peng, H. Wang, Y. Lai and S. Chen	155
Dielectric Characterisation of Plastics for Microwave Oven Applications	
L.C. Costa, A. Correia, A. Viegas, J.B. Sousa and F. Henry	161
Biodegradable Polymer Studied by Physical Properties Measurements	
F. Henry, M. Devassine, P. Guerin, L.C. Costa and X. Briand	165
A Comparative Study of Radon Retention Ability of Crystalline Apatite and Amorphous Oxide Materials	
F.Z. Boujrhal, E.K. Hlil, R.C. El Moursli, T. El Khoukhi and B. Sghir	169
Analysis of the Creep Behaviour of Polypropylene	
J. Reinas Dos Santos André and J.J.C. Pinto	175
Microstructural Differences of Adhered Material in the Tool Edge and Tool Rake Face. Application to the Machining of Al Alloys	
J.M. Sánchez, M.A. Sebastián, J.M. González, M.S. Carrilero and M. Marcos Bárcena	181
Effect of Heat Treatment on TiN_x Film Structure	
S. Zerkout, M. Benkahoul, H. Sahraoui, S. Achour and A. Mosser	187
Study of Erbium Oxidation by XPS and UPS	
N. Guerfi, O. Bourbia and S. Achour	193
Study of Donor Centres in n-InSb due to the Temperature Annealing	
Y. Sayad and A. Nouiri	197
Undercooling of Eutectic Sn-57wt%Bi Alloy	
W.B. de Castro	201
Effect of Laser Process Parameters on the Surface Absorbtivity	
G. Demian, M. Taca, I. Gutu and M. Demian	207
Comparisons on Doping of Different Alkyl Compound on SiO₂ to Form a Low-k Dielectric Material	
A.Y.K. Lim and K. Ibrahim	213
The Growth of Porous Layer on Resistive P-Type Silicon in HF/Ethylene Glycol under Illumination	
N. Chiboub, F. Bellal, N. Gabouze and S. Sam	217
Raman Microscopy Investigations and Electrical Characterisation of Indentation-Induced Phase Transformations in Silicon	
M.M. Khayyat, D.G. Hasko and M.M. Chaudhri	225
Non-Destructive Observation of Damage Processes in Loaded High Ductile Specimens with Different Crack Configuration by X-Ray Dynamic Defectoscopy	
D. Vavřík, J. Jakubek, S. Pospíšil and J. Visschers	231
Cd_{1-x}Mn_xS Nanoparticles: Far-Infrared Phonon Spectroscopy	
N.Ž. Romčević, R. Kostić, M.J. Romčević, M. Grujić-Brojčin, M.I. Čomor, V.V. Vodnik and J.M. Nedeljković	237
Estimation of Selenium Consumption during Selenization of Cu-In Metallic Layer in a Quazi-Closed System	
F. Kurdesau and M. Kaelin	243
Bioimpedance Spectra of Small Particles in Liquid Solutions: Mathematical Modeling of Erythrocyte Rouleaux in Human Blood	
A. Zehe, A. Ramírez, O. Starostenko and A. Sánchez	251
Physico-Chemical Properties and Performance of Novel PEEK-WC Membranes Contacting Human Plasma and Proteins	
L. De Bartolo, A. Gugliuzza, S. Morelli, B. Cirillo, A. Gordano and E. Drioli	257
Frequency Dependence of Electrical Conductivity and Loss Tangent in Studies on Water-Solution of Irradiated Bones	
E. Pankowski and L. Kubisz	269
Amorphous Structure of Poly(Propylene Glycol) Electrolytes	
G. Goulart Silva, P.P.d. Souza, A.J. Silveira Mizher and M.A. Pimenta	273
Prediction of Polymer Molecular Weight Distribution from Rheology: Polydimethylsiloxane Blends	
J. Llorens, E. Rudé and R.M. Marcos	281
Optical Properties of Sputtered Silver Granular Films	
S.E. Paje, F. Teran, J.M. Riveiro, J. Llopis, M.A. García, M.C. Marco de Lucas and L. Saviot	287

Magnetic and Mechanical Properties of Magnetic Glass-Coated Microwires with Different Glass Coating	
V. Zhukova, A. Zhukov, V. Larin, A. Torcunov, J. González, A.R. de Arellano-López, J.J. Quispe Cancapa and A.R. Pinto-Gómez	293
Physical Properties of Fluoride Glasses for Ionics	
V. Trnovcová, R.M. Zakalyukin, N.I. Sorokin, D. Ležal, P.P. Fedorov, E. Illeková, A. Škubla and M. Kadlecíková	299
Control of the Weak Phosphorus Doping in Polysilicon	
M. Zaghdoudi, M.M. Abdelkrim, M. Fathallah, T. Mohammed-Brahim and F. Le Bihan	305
Formation of Zn-ZnO Polygon Prismatic Nanocrystals by Liquid Source via Thermal Vapor Transport	
K. Liu, C. Lin and S. Chen	309
Preparation and Characterization of TeO₂ Based Glasses	
J. Pedlíková, J. Zavadil, O. Prochazková and J. Kaluzny	315
Gamma and UV Radiation-Induced Color Centers in Optical Fibers	
S. Girard, E. Régnier, A. Boukenter, Y. Ouerdane, J.-. Meunier and D. Hamdani	323
Radiation-Induced-Defects Localization in Single-Mode Optical Fibers	
S. Girard, A. Boukenter, Y. Ouerdane and J.-. Meunier	329
Preparation and Characterization of Thermoplastic Vulcanizates-Organoclay Nanocomposites	
B. Herrero, M. Arroyo and M.A. López-Manchado	333
Photoacoustic Spectroscopy Applied to the Study of Bone Consolidation in Fractures	
P.A. Lomeí Mejía, G. Urriolagoitía, J.L. Jiménez Pérez, L.H. Hernández-Gómez, H. Lecona Butron and A. Cruz Orea	339
Correlationship between Microscopic Observations and Electrochemical Behaviour of Different Kind of Galvanized Steel	
J.J. García-Jareño, D. Giménez-Romero and F. Vicente	345
Endohedral Encapsulation of Lithium in C₇₀	
M. Veljković, O. Nešković, T. Ivetić, S. Veličković and T. Maksin	351
Viscoelastic Properties of Ceria Gel	
N. Phonthammachai, M. Rumruangwong, S. Jitkanka, E. Gulari, A.M. Jamieson and S. Wongkasemjit	355
Simulation of Thixocasting Processes in Automotive Component	
A. Forn, S. Menargues, E. Martín and G.L. Chiarmetta	361
Effect of Heat Treatments in the Silicon Eutectic Crystal Evolution in Al-Si Alloys	
A. Forn, M.T. Baile, E. Martín and E. Rupérez	367
Termoluminescent Properties of High Sensitive ZrO₂+PTFE for UV Radiation Dosimetry	
T. Rivera Montalvo, C. Furetta, J. Azorín Nieto, C. Falcony Guajardo, M. García and E. Martínez	373
Determination of ZrO₂ Thermoluminescence Kinetic Parameters after UV Irradiation Using Peak Shape Methods	
T. Rivera Montalvo, C. Furetta, J. Azorín Nieto, C. Falcony Guajardo, M. García and E. Martínez	381
Structure of Ti_{1-X}Ta_XN Thin Films Prepared by DC-Magnetron Sputtering	
O. Bourbia, N. Guerfi, S. Achour, N. Tabet and A. Mosser	387
XRD and Photoluminescence Studies of Pure and In₂O₃ Doped ZnO Nanophases	
N. Boulares, K. Guergouri, N. Tabet, A. Lusson, F. Sibieude and C.J.A. Monty	393
Negative Capacitance Phenomena in CZT Room Temperature Radiation Detectors	
M.A. Hassan	399
Martensitic $\alpha \leftrightarrow \gamma$ Phase Transition and Ionic Conductivity in "Pure" and Doped LiIO₃ Single Crystals	
V. Trnovcová, F. Hanic, T. Šrámková and A. Škubla	405
Potential and Current Uses of Luminescence in Medical Diagnosis	
L. Avramaov, E. Borisova, P.D. Townsend and L.A. Valberg	411
Modification of Faceplates by Selective Chemical Etchings	
M. González, M. Domenech and G. Lifante	417
Dependence of the Refractive Indices in LiNbO₃:Cr Crystals Doped with HfO₂	
E. Cantelar, G.A. Torchia, V. Bermúdez, D. Jaque, J.A. Sanz-Gracia, G. Lifante, T.P.J. Han and F. Jaque	423

Fabrication and Characterisation of Reverse Proton Exchange Optical Waveguides in Neodymium Doped Lithium Niobate Crystals	429
M. Domenech, G. Lifante, F. Cussó, A. Parisi, A.C. Cino and S. Riva Sanseverino	
Analysis of Dielectric Relaxation Parameters in the Range of Glass Transition	437
E.R. Neagu, J.N. Marat-Mendes and R. Neagu	
High Performance Photocathodes with 50% Quantum Efficiency	445
P.D. Townsend, R.J. Downey, S.W. Harmer, A.N. Cormack and R. Mcalpine	
Production of Ge Heterofullerenes by Arc-Discharge Technique	449
M. Yilmaz and B. Uluğ	
Preparation of Nanocrystalline Copper and Copper Silicon Sulphide by Mechanochemical Route	453
P. Baláz, E. Boldižárová and E. Godočiková	
Quenching of Luminescence Emission due to a Transient Bonding State of Donor-Acceptor Pairs at High Excitation Levels in GaAlAs Crystals Doped to Compensation	457
A. Zehe, E. Reynoso and A. Ramírez	
Electron Wind Induced Mass Transport in Sub-Micrometer Size Wires	463
A. Zehe, A. Ramírez and A. Patiño	
Iron/Graphite Core-Shell Structured Nanoparticles Prepared by Annealing of Nanopowder	469
B. David, N. Pizúrová, O. Schneeweiss, P. Bezdička, I. Morjan and R. Alexandrescu	
Preparation of Lead Iodide as Input Material for X-Ray Detectors	477
M. Matuchová, O. Prochazková, K. Zdanský, J. Zavadil and J. Maixner	
Novel Approach to Preparation of InP Layers for Radiation Detectors	483
O. Prochazková, J. Zavadil, K. Zdanský and J. Grym	
Characterization by Electron Diffraction of Two Thermodynamical Phases of Precipitation in Nb-Microalloyed Steels	489
M. Gómez, S.F. Medina, P. Valles and A. Quispe	
Electric Charge Trapping and Transport at Medium Fields in Low-Density Polyethylene	495
J.N. Marat-Mendes, E.R. Neagu and R.M. Neagu	
Space Charge Studies of Aged XLPE Using Combined Isothermal and Thermostimulated Current Measurements	501
M. Carmo Lança, E.R. Neagu and J.N. Marat-Mendes	
The Analysis of Space Charge Behavior in Nylon 11	507
E.R. Neagu, J.N. Marat-Mendes and R.M. Neagu	
Characterization of Polyethylene Foams under Compressive Impact Loading	513
J.L. Ruiz-Herrero, M.A. Rodríguez-Pérez and J.A. de Saja	
Optical Properties of GaN on Si Substrate Using Plasma-Assisted MOCVD Technique in the Infrared and Visible Regions	519
M.R. Hashim, S.A. Oh, S.S. Ng, H. Zainuriah, K. Ibrahim, M. Barmawi, Sugianto, M. Budiman and P. Arifin	
Characteristics of Ni-Based Bi-Layer Contacts on GaN	525
H. Zainuriah, F.K. Yam, Z.J. Yap, A. Abdul Aziz and K. Ibrahim	
Growth and Properties of GaN/Si Heterojunction	531
H. Zainuriah, S.S. Ng, G.L. Chew, F.K. Yam, M.J. Abdullah, M.R. Hashim, K. Ibrahim and M.E. Kordesch	
Study of the Isotope Effects in the Hydrogen Transport in Polycrystalline Tungsten	537
G.A. Esteban, A. Perujo and F. Legarda	
Holographic Gratings with Different Spatial Frequencies Recorded on BB-640 Bleached Silver Halide Emulsions Using Reversal Bleaches	543
M.L. Álvarez, N. Camacho, C. Neipp, A. Márquez, A. Beléndez and I. Pascual	
Rheology and Heat Treatment of Zirconia Based Gels Synthesized from Sodium Glycozirconate Precursor	549
B. Ksapabutr, E. Gulari and S. Wongkasemjit	
Self-Diffusion of Iron in Nano-Crystalline Iron Nitride	557
M. Gupta, A. Gupta, L.M. Kukreja, P. Mishra, S. Rajagopalan, A.K. Balamurgan and A.K. Tyagi	
Structural Properties and Stability of Metastable Phases in the Zr-Nb System	565
G. Aurelio, A. Fernández Guillermot, G.J. Cuello and P.B. Bozzano	
Temperature Dependence of the Elastic Properties of Hysteretic Materials	573
M. Nobili, M. Scalerandi and P.P. Delsanto	

Electrical Property of Calcium-Zirconium-Indium Oxide by Irradiation	579
B. Tsuchiya, S. Nagata, K. Saito, K. Toh and T. Shikama	
Inhibition Layer Breakdown by a Fast Diffusion Procedure of Zinc in Galvanized Coatings	585
E. Pavlidou, N. Pistofidis, G. Vourlias and F. Stergioudis	
Determining the Tensile Strength of Glass Metals Using a Theoretical Method	589
I. Zsoldos, J.F. Janik and L. Pellenyi	
Electromagnetic Wave Absorption Behavior of NiZn-Ferrite Prepared via Hydrothermal Method	595
C. Peng, H. Wang, S. Kan and S. Chen	
A Comparison of Quantum Correction Models for Nanoscale MOS Structures under Inversion Conditions	603
Y. Li	
Thermal Conductivity and Acoustic Performance of Volcanic Pumice Based Composites	611
K.M.A. Hossain and M. Lachemi	
Computer Calculations of the Thermally-Induced Magnetic and Electronic Properties of the Rare Earth Compounds RERu₂Si₂	617
R. Michalski and R.J. Radwanski	
Effect of Structural Disordering on the Magnetic, Magneto-Optical and Optical Properties of the Ni₂MnIn Heusler Alloy Films	623
Y.V. Kudryavtsev, Y.P. Lee, N.N. Lee and M.D. Huang	
Frequency-Diffusion Characteristics of Silicic Acid Gels	629
Y.I. Sukharev and V.V. Avdin	
Success of the Z-Matrix Representation in Monte-Carlo Structural Determination of Stimulant Drugs (Caffeine and Nicotine) from their X-Ray Powder Diffraction Pattern	635
J.A. Antequera-Barroso, L. Godoy-Acedo, L.M. González-Méndez, M.C. García-Cuesta, F.L. Cumbre and J.J. Meléndez-Martínez	
Design and Manufacturing Process of Skull Defect Prostheses	641
Z. Szakal, I. Zsoldos and Z. Csernátony	
Pyroelectric and Photoacoustic Properties of Pb_{0.88}(Ln)_{0.08}Ti_{0.98} Mn_{0.02} O₃ (Ln = La, Sm, Eu) Piezoceramics for Biomedical Use	645
R. González, V. Castillo and E. Suaste	