

Table of Contents

Preface

Ion Hopping and Tunneling Mechanisms at Low Temperature in Solid Electrolytes	3
M.W. Breiter, W.J. Lorenz and G. Staikov	
Diffusion in a Coulombic Trap	13
D. Knödler, P. Pendzig, R. Przenioslo, R. Kutner and W. Dieterich	
Ionic Conduction in Composite Materials Containing One Molten Phase	19
B. Zhu and B.E. Mellander	
Modelling of the Processes of Cation Trasport over Oxide Surface	23
T. Zyubina and Y. Dobrovolsky	
Strong Interface Interaction in Nanocomposite Solid Electrolytes	27
N.F. Uvarov and E.F. Hairetdinov	
Electrochemical Investigation Methods of Ionic Transport Properties in Solids	35
J. Maier	
Impedance Studies of the Conductivity Hysteresis in Some Polycrystalline Samples of Bicuvox.10	61
J.R. Dygas, P. Kurek and M.W. Breiter	
Studies of Sol-Gel Materials by Impedance Spectroscopy	67
H. Durakpasa, G. Fafilek and M.W. Breiter	
Potential Relaxation in Superionic Systems after Hydrogen Concentration Pulse	71
A.J. Ukshe and L. Leonova	
Structural Studies on BICOVOX	75
T. Shigematsu, F. Krok and W. Bogusz	
The Study of the High Temperature Oxidation of Metals in a Solid State Electrochemical Cell	81
S. Tanasescu, N.D. Totir and D.I. Marchidan	
Mixed Ionic Electronic Conductors	89
I. Riess	
Ionic and Electronic Defect Structure of a High-T_c Superconductor YBa₂Cu₃O_{7-δ}	99
J. Molenda, A. Stoklosa and T. Bak	
Mixed Ionic-Electronic Conductors on the Basis of Calcium Doped Lanthanum Manganites	103
P. Shuk, K. Künstler, W. Richter, U. Guth and L. Tichonova	
The Sr-Ce-O System: Ionic and Mixed Conduction	107
H. Ullmann and K. Teske	
Electrical and Optical Properties of Undoped and Fe-Doped TiO₂ Single Crystals	113
M. Radecka, M. Rekas and K. Zakrzewska	
Non-Stoichiometry and Electrical Transport in Gd₂(Ti_{1-x}Nb_x)₂O₇	117
I. Kosacki, S. Kramer and H.L. Tuller	
Electrical Conductivity of Cu_{2(1-x)}W_xO_{1+y}	123
Y. Tsur and I. Riess	
Electrical and Electrochemical Properties of Molybdenum Disulfide	127
J. Molenda and K. Krzywanek	
Sodium Cobalt Bronze as a Reference Electrode	131
N.G. Bukun and E.A. Ukshe	
Defect Structure and Electrical Properties of Cr- and Nb-Doped TiO₂ Thin Films	135
M. Radecka and M. Rekas	
TiN Thin Films Preparation, Structural and Electrical Probererties	139
A. Tarniowy, R. Mania and M. Rekas	
Ionic Conductivity in Hexagonal Ferrites	143
V.M. Zhukovsky and O.V. Bushkova	
Oxide Ion and Electron Conjugate Diffusion in Perovskite-Like SrCo_{1-x}M_xO_{3-δ} (M=Cr..Cu; x=0..0.5)	147
V.V. Kharton, E.N. Naumovich and A.V. Nikolaev	

Structural Study on the Thermal Evolution of Mn_{3-δ}(O,OH)₄ in the Oxidizing and Reducing Atmosphere	
E. Wolska and J. Kaczmarek	153
Highly Conducting Solid Electrolytes Based on Polymer Blends	
Z. Florjanczyk and W. Wieczorek	161
Dynamic Light Scattering in a Salt-Polymer Complex, Mg(ClO₄)₂ - PPG(4000)	
R. Bergman, Q. Lu, D. Engberg, L.M. Torell and C.A. Angell	165
Modification of Solid Polymeric Electrolytes from PEO-NaI System by the Addition of Finely Dispersed Aluminum Powder	
M. Siekierski	171
Passivation Phenomena at the Lithium-Nanocomposite Polymer Electrolyte (NCPE) Interface	
W.T. Krawiec, J.P. Fellner, E.P. Giannelis and L.G. Scanlon	175
A.C. Conductivity Studies of PEO-NH₄SCN Electrolytes	
D. Prusinowska, M. Siekierski, W. Wieczorek and J. Przyluski	181
Crystallinity and Ionic Conductivity in the System (PEO)₁₀-LiClO₄-PVA	
A.L. Kruglyashov, I.Y. Animitsa, O.V. Bushkova, V.M. Zhukovsky and A.I. Suvorova	185
The Interface between Mercury and Polyether Electrolytes	
P.G. Bruce, A. Lisowska-Oleksiak and C.A. Vincent	189
Cation Diffusion and Ion Transport Mechanism in the System Li₂SO₄-Na₂SO₄	
A. Lunden, L. Nilsson and R. Träneberg	199
Divalent-Ion β"-Aluminas as Solid Electrolytes to the Direct Determination of Thermodynamic Functions for the Oxide Systems	
G. Róg	203
Anisotropic Conductivity and Low-Temperature Phase Transition in Na₄TiP₂O₉	
A.K. Ivanov-Schitz	207
The Effect of Strong Electrical Fields on the Conductivity of Solid Electrolytes α-Li₂SO₄ and 0.8Li₂SO₄*0.2Na₂SO₄	
R.M. Guseinov, S.M. Gadzhiev and V.D. Prisyzhniy	211
Criteria for Prediction of High Oxide Ion Conductivity in Perovskite Oxides	
J. Ranløv, N. Bonanos, F.W. Poulsen and M. Mogensen	219
Relaxational Dispersion of the Electric Properties of Y₂O₃ Stabilized Tetragonal ZrO₂	
A.F. Orliukas, A. Kežionis, K. Paulavicius, L.J. Gauckler, K. Sasaki and P. Bohac	223
Effect of Reduction on Single Crystal Yttria-Stabilized Zirconia (YSZ)	
M. Hartmanová, A.A. Urusovskaya, M. Valko and T.V. Oreshnikova	227
Superionic Fluoride Ceramics Prepared by HP Technology	
V. Trnovcová, A.N. Smirnov, P.P. Fedorov, F. Hanic, V. Kliment and V. Šmatko	231
Conductivity Enhancement in Fluorides by Grain Boundary Activation	
Y. Saito, K. Hariharan and J. Maier	235
Superionic Conductivity of Single Crystalline Gd_{1-x}Sr_xF_{3-x} Solid Solutions with the Tysonite Structure	
N.I. Sorokin and B.P. Sobolev	239
Oxide Solid Electrolytes in the System Bi₂O₃-PbO-Y₂O₃	
E.N. Naumovich, S.A. Skilkov, V.V. Kharton and A.A. Vecher	243
Temperature and Time Dependence of Conductivity of Single Crystals of BICUVOX	
P. Kurek, J.R. Dygas and M.W. Breiter	247
The Compositional Dependence of Electrical Conductivity of BICOVOX	
W. Bogusz, F. Krok, D. Bangobango and W. Jakubowski	251
EMF Measurements by Solid Electrolytes Based on Thoria and Zirconia at Lower Temperatures	
K. Künstler, H.J. Lang, W. Richter and P. Shuk	255
Oxygen Sublattice of YSZ Doped with Cobalt Oxide	
M. Hartmanová, J. Schneider, A.A. Urusovskaya, K. Putyera and D. Tonega	263
NO_x-Determination with Galvanic Zirconia Solid Electrolyte Cells	
V. Brüser, U. Lawrenz, S. Jakobs, H.- Möbius and U. Schönauer	269
Chromite Powder/Solid Electrolyte Electrodes in Reactive Gas Mixtures at Lower Temperatures	
R. Hartung, S. Thiemann-Handler and H.- Möbius	273

Low-Temperature Superionic Carbon Dioxide Sensor L. Leonova, Y. Dobrovolsky and E.A. Ukshe	277
Crystallization in Fast Ionic Glassy Silver Oxysalt Systems S. Adams, K. Hariharan and J. Maier	285
Estimation of the Free Charge Carrier Concentration in $B_2S_3-Na_2S$ Glasses from Analysis of Frequency Dependent Conductivity E.F. Hairetdinov, N.F. Uvarov, H.K. Patel and S.W. Martin	289
Electrical Conductivity of Amorphous Conductors on the Base of Zinc Fluoride N.I. Sorokin, M.V. Fominykh, P.P. Fedorov and B.P. Sobolev	293
Electrical Properties of Mixed Electronic-Ionic Glassy Conductors of the $Ag_2O-V_2O_5-B_2O_3$ System M. Wasiucionek, B. Wnetrzewski and W. Jakubowski	297
Mixed Electronic-Ionic Conductivity of Glasses of the $Li_2O-V_2O_5-B_2O_3$ System M. Wasiucionek, M. Cichosz, P. Kurek and W. Jakubowski	301
Ionic Conductivity of the Glass 50AgI- 30Ag₂O - 20V₂O₅ J.E. Garbaraczyk, M. Wasiucionek, K. Krasowski and W. Jakubowski	305
Protonic Conductivity and Superionic Phase Transitions in Inorganic Sulphates and Selenates B. Hilczer, A. Pawłowski, C. Pawlaczyk and M. Polomska	313
Solid Protonic Electrolyte Based on Antimony Pentoxide and Hydrogen Gas Sensor V.G. Ponomareva, G.V. Lavrova and E.F. Hairetdinov	317
Electrical Properties of Ionic Conductor below and above Melting Point. Tetraalkylammonium Cation Hydrate M. Opallo, Z. Borkowska, P. Zoltowski and A. Tymosiak	321
Spectroscopic Study of Hydrogen Bonding in Solid Proton Conductors T.A. Karaseva, G. Telbiz, D. Ostrovsky, V. Štreloko (Jr.) and M. Valakh	327
Low Activation Solid-Phase Systems with Proton Transfer T.A. Karaseva	331