

Table of Contents

Foreword, Committees and Contributors

Chapter 1: Theory Research and Numerical Simulation

Anomalous Temperature and Field Behaviors of Magnetization in Cubic Lattice Frustrated Ferromagnets

A.N. Ignatenko, A.A. Katanin and V.Y. Irkhin 3

Coarsening in Critical Dynamics of 2D XY-Model

I. Popov and P. Prudnikov 8

Green's Function of Magnetoelastic Waves

V.A. Ignatchenko and D.S. Polukhin 12

Spin Excitations in Chiral Model of Graphene

Y.P. Rybakov 16

Low-Temperature Spin Fluctuations beyond Spin Waves

N.B. Melnikov and B.I. Reser 20

Spin Fluctuations in Disordered Metallic Ferrimagnetic Alloys

V.I. Grebennikov and D.I. Radzivonchik 25

The Investigation of Critical Properties of the Transition from Modulated Phase into Paramagnetic Phase

A.K. Murtazaev and Z.G. Ibaev 30

Adsorption and Magnetic Properties of Ultrathin Fe and Ni Alloy Films with an Inhomogeneous Magnetization Distribution

D.V. Pilipenko, M.V. Mamonova and V.V. Prudnikov 34

Edge Rotational Magnons in Magnonic Crystals

I. Lisenkov, D. Kalyabin and S. Nikitov 38

Finite Size Effects in Magnetic Multilayers Induced by Interaction with the Substrate

M.V. Kostyuchenko 43

Green's Functions of Spin and Electromagnetic Waves in the Sinusoidal Superlattice

V.A. Ignatchenko and D.S. Tsikalov 47

Resonant Dynamics of the Domain Walls in Multilayer Ferromagnetic Structure

E.G. Ekomasov, A.M. Gumerov, R.R. Murtazin, R.V. Kudryavtsev, A.E. Ekomasov and N.N. Abakumova 51

Peierls "Washboard" Controls Dynamics of the Domain Walls in Molecular Ferrimagnets

M. Kirman, A. Talantsev and R. Morgunov 55

Micromagnetic Calculation of Neel Domain Wall Structure

V.S. Semenov 60

Micro Grid Frame of Electroless Deposited Co-P Magnetic Tubes

L.A. Chekanova, E.A. Denisova, R.N. Yaroslavl'tsev, S.V. Komogortsev, D.A. Velikanov, A.M. Zhizhaev and R.S. Iskhakov 64

Canted Spiral Magnetic Order in Layered Systems

M.T. Timirgazin, V.F. Gilmudinov and A.K. Arzhnikov 68

Second Order Precession in the Plate with Cubic Anisotropy and Magnetoelastic Properties

M.S. Kirushev, V.S. Vlasov, D. Pleshev, F.F. Asadullin, L.N. Kotov, V.G. Shavrov and V.I. Shcheglov 73

Influence of Quenched Nonmagnetic Impurities on Phase Transitions in Two-Dimensional 3-State Antiferromagnetic Potts Model on Triangular Lattice

A.B. Babaev, A.K. Murtazaev and R.A. Murtazaliev 79

Autoresonant Excitation of Spin Wave "Dark" Solitons

M.A. Borich, A.P. Tankeev and A.G. Shagalov 82

Phase Transitions in Frustrated Ising Antiferromagnet on a Body-Centered Cubic Lattice with Next-Nearest Neighbor Interactions

A.K. Murtazaev, M.K. Ramazanov and D.R. Kurbanova 86

Chapter 2: Magnetic Semiconductors and Oxides

Ferromagnetism in GaAs/InAs/GaAs Quantum Dot Layer Delta-Doped with Mn V.A. Kulbachinskii, L.N. Oveshnikov and B.A. Aronzon	93
Galvanomagnetic and Magnetic Properties of $\text{Pb}_{1-y}\text{Sc}_y\text{Te}$ E.P. Skipetrov, M.M. Markina, K.V. Zakharov, L.A. Skipetrova, A.A. Solovev, A.V. Knotko, E.I. Slynko and V.E. Slynko	97
Magneto-Optical Evidence for Intrinsic Ferromagnetism in (Ga,Mn)As Layers Grown by Pulsed Laser Deposition E.A. Gan'shina, L.L. Golik, Z.E. Kun'kova, V.I. Kovalev, Y.V. Markin, A.I. Novikov, G.S. Zykov, Y.A. Danilov, A.V. Kudrin, O.V. Vikhrova and B.N. Zvonkov	101
Effect of Mn Doping on Magnetic and Dielectric Properties of $\text{Bi}_2\text{Sn}_2\text{O}_7$ L.V. Udod, S.S. Aplesnin, M.N. Sitnikov, E.V. Eremin and M.S. Molokeev	105
Anomalous Hall Effect in 2D DMS L.N. Oveshnikov, V.A. Kulbachinskii, A.B. Davydov and B.A. Aronzon	109
Magnetism of Bismuth(III) Oxide-Based Compounds E.A. Kravchenko	113
Magneto-Electronic Phase Separation in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ with Metallic Behavior in Paramagnetic Region V.A. Ryzhov, V.P. Khavronin, V.V. Deriglazov, Y.M. Mukovskii and V.I. Chichkov	117
Manifestation of Donor Hybridized Electron States in Magnetism of Nickel Impurities in Mercury Selenide Crystals T.E. Govorkova, A.F. Gubkin, A.T. Lonchakov, V.I. Okulov, M.A. Andriichuk and L.D. Paranchich	121
Relaxation Attenuation of Ultrasound by the Jahn-Teller Centers in ZnSe:Cr in High Magnetic Fields N.S. Averkiev, I.B. Bersuker, V.V. Gudkov, S. Zherlitsyn, S. Yasin, I.V. Zhevstovskikh, K.A. Baryshnikov, A.M. Monakhov, M.N. Sarychev, Y.V. Korostelin and A.I. Landman	125
Role of Magnetic Subsystems to Form a Complex Magnetic Structure Mn_2GeO_4 Single Crystals N.V. Volkov, N.V. Mikhashenok, K.A. Sablina, A.I. Pankrats, V.I. Tugarinov, A.D. Balaev and M.V. Gorev	129
Spin-Lattice Coupling and Peculiarities of Magnetic Behavior of Ferrimagnetic Ludwigites $\text{Mn}_{0.5}^{2+}\text{M}_{1.5}^{2+}\text{Mn}^{3+}\text{BO}_5$ ($\text{M}=\text{Cu}, \text{Ni}$) L. Bezmaternykh, E. Moshkina, E. Eremin, M. Molokeev, N. Volkov and Y. Seryotkin	133
Synthesis and Magnetic Properties of $\beta\text{-Cu}_3\text{Fe}_4(\text{VO}_4)_6$ Single Crystals D.A. Balaev, O.A. Bayukov, E.V. Eremin, M.S. Molokeev, A.I. Pankrats, K.A. Sablina, D.A. Velikanov and A.M. Vorotynov	137
Giant Magnetothermopower in $\text{Sm}_{0.55}\text{Sr}_{0.45}\text{MnO}_3$ Manganite L.I. Koroleva, A.S. Morozov and E.S. Zhakina	141
Peculiarities of Elastic Properties of RE Cobaltites RBaCo_4O_7 ($\text{R} = \text{Dy} - \text{Er}, \text{Y}$) at Magnetic Phase Transitions Z. Kazei, V. Snegirev, A. Andreenko, L. Kozeeva and M. Kameneva	145
Femtosecond Photo-Induced Phenomena in Multiferroic Hexagonal Manganite YMnO_3 V. Pavlov, V. Gridnev, R. Pisarev, M. Pohl, I. Akimov, D. Yakovlev and M. Bayer	149
Magneto-optical Properties of $\text{Hg}_{1-x}\text{Cd}_x\text{Cr}_2\text{Se}_4$ Solid Solutions Y.P. Sukhorukov, A.V. Telegin, E.V. Mostovshchikova, N.G. Bebenin, R.I. Zainullina, E.A. Gan'shina, G.S. Zykov, V.A. Fedorov and T.K. Menschikova	153
Influence of Different Interlayers on the Electrical and Magnetic Properties of Multilayered Structures Based on $(\text{Co}_{41}\text{Fe}_{39}\text{B}_{20})_{33.9}(\text{SiO}_2)_{66.1}$ Composite Y.E. Kalinin, M.A. Kashirin and A.V. Sitnikov	157
Two Sources of Paramagnetic Curie-Type Contribution to the Normal State Magnetic Susceptibility of HTSC $\text{YBa}_2\text{Cu}_3\text{O}_{6+\delta}$ L. Mamsurova, N. Trusevich, K. Pigalskiy, A. Vishnev and I. Mamsurov	161
Investigation of Hydrothermally Synthesized Greigite Magnetic Properties M. Krivenkov, T. Gendler and A. Novakova	165

Electron Doped CaMnO₃: Mn-Site Substitution versus Ca-Site Substitution E.V. Mostovshchikova, S.V. Naumov, R.I. Zainullina, N.G. Bebenin, T.I. Arbuzova and N.I. Solin	169
Temperature Dependence of Electronic and Magnetic Properties of (DOEO)₄[HgBr₄]-TCE Single Crystals A. Chernenkaya, O. Koplak, K. Medjanik, A. Kotov, R. Morgunov, E. Yagubskii, H.J. Elmers and G. Schönhense	173

Chapter 3: Magnetic Alloys and Magnetocaloric Effect

Annealing Influence on the Exchange-Bias and Magnetostructural Properties in the Ni_{50.0}Mn_{36.5}Sn_{13.5} Ribbon-Shape Alloy L. González-Legarreta, M. Ipatov, D. González-Alonso, A.P. Kamantsev, V. Koledov, V.G. Shavrov and B. Hernando	179
Direct and Inverse Magnetocaloric Effect in Ni_{1.81}Mn_{1.64}In_{0.55} Multifunctional Heusler Alloy R. Fayzullin, V.D. Buchelnikov, M. Drobosyuk, A. Mashirov, A. Kamantsev, B. Hernando, M. Zhukov, V.V. Koledov and V.G. Shavrov	183
First Principles Investigations of Structural and Magnetic Properties of Fe-Ni-Mn-Al Heusler Alloys V.D. Buchelnikov, M.A. Klyuchnikova, M.A. Zagrebin and V.V. Sokolovskiy	187
Heat Pumping Scheme Based on Inducement of the F-AF Transition in FeRh by Pressure V.V. Rodionov, V.V. Rodionova and M.P. Annaorazov	192
Influence of Rapid Quenching on Magnetocaloric Effect of Y₂(Fe,Mn)₁₇ Intermetallic Compounds A.I. Zvonov, N.Y. Pankratov, D. Karpenkov, A. Karpenkov and S.A. Nikitin	196
Magnetic and Magneto-Optical Research of Ni_{43.7}Mn_{43.6}In_{12.7} Ribbons A. Novikov, E. Gan'shina, L. Gonzalez-Legarreta, V.M. Prida, B. Hernando and A. Granovsky	200
Magnetic Phase Transitions and Magnetocaloric Effect in R₂Fe₁₇ (R = Y, Tb, Er) S.A. Nikitin, I.A. Ovchenkova, G.A. Tskhadadze and K.P. Skokov	204
Magnetocaloric and Magnetoelastic Properties of the Gd₅Si₂Ge₂ with Small Indium Substitutions in p-Sublattice S.A. Nikitin, A.E. Bogdanov, I.A. Ovchenkova, E.A. Ovchenkov, A.V. Smirnov and A.V. Morozkin	208
Magnetocaloric Effect and Frustrations in One-Dimensional Magnets A.V. Zarubin, F.A. Kassan-Ogly, M.V. Medvedev and A.I. Proshkin	212
Magnetocaloric Effect of Gadolinium at Adiabatic and Quasi-Isothermal Conditions in High Magnetic Fields A.P. Kamantsev, V. Koledov, A.V. Mashirov, E.T. Dilmieva, V.G. Shavrov, J. Cwik and I.S. Tereshina	216
Magnetocaloric Properties of Cold Rolled Gd_{100-x}Zr_x (x = 0, 1, 2, 3) Intermetallic Alloys S. Taskaev, K. Skokov, D. Karpenkov, V.V. Khovaylo, V.D. Buchelnikov, D.A. Zherebtsov, M. Ulyanov, D. Bataev, D. Galimov and A. Pellenen	220
Magneto-Optical Study of Martensitic Transition in Ni₄₅Mn_{36.7}In_{13.3}Co₅ (at. %) Single Crystals E. Gan'shina, A. Novikov, V. Chernenko, J. Barandiaran, E. Cesari, I. Rodionov, I. Titov, V. Prudnikov and A. Granovsky	225
Structural and Magnetic Properties of Mn₂NiZ (Z = Ga, In, Sn, Sb) Heusler Alloys from <i>Ab Initio</i> Calculations V.V. Sokolovskiy, M.A. Zagrebin, Y.A. Sokolovskaya and V.D. Buchelnikov	229
Structure, Electrical and Magnetic Properties of Ni_{47-x}Mn_{42+x}In₁₁ (x=0, 1, 2) Based Heusler Alloys S.M. Emelyanova, V.V. Marchenkov, K.A. Belozerovala, E.I. Patrakov, R.L. Wang, H.B. Xiao, C.P. Yang, H.W. Weber, F. Sauerzopf and Y.V. Kaletina	233
The Influence of Cold Rolling on Magnetocaloric Properties of Gd_{100-x}Y_x (x = 0, 5, 10, 15) Alloys S. Taskaev, K. Skokov, D. Karpenkov, V.V. Khovaylo, V.D. Buchelnikov, D.A. Zherebtsov, M. Ulyanov, D. Bataev, A. Pellenen and A. Fazlitdinova	238
The Magnetocaloric Effect and Magnetic Transitions in Hydride Compounds: GdNiH_{3.2} and TbNiH_{3.4} A.I. Smarzhevskaya, S.A. Nikitin, V.N. Verbetsky, W. Iwasieczko and A.N. Golovanov	243

Untypical Temperature Dependence of the Magnetocaloric Effect in the Dy(Co_{1-x}Fe_x)₂ (x = 0.10; 0.15) Compounds	
M.S. Anikin, E.N. Tarasov, N.V. Kudrevatykh and A.V. Zinin	247
Monte Carlo Study of the Polycrystalline Ni₂MnGa Heusler Alloy	
O.O. Pavlukhina, V.V. Sokolovskiy and V.D. Buchelnikov	251
Magnetic Properties of Rapidly Quenched Ribbons of Soft Magnetic Iron-Based Alloys after Annealing in Air and in Vacuum	
N.A. Skulkina, O.A. Ivanov, E.A. Stepanova and I.O. Pavlova	255
Magnetic Properties and Magnetostriction of R₂Fe₁₇H_{3±x} (R = Tb, Dy) Hydrides	
I. Tereshina, E.A. Tereshina, M. Doerr, I.A. Pelevin, I.V. Telegina, A.I. Smarzhenskaya and H. Drulis	259

Chapter 4: Magnetic Microwires

High Temperature Properties of CoFe/CoNi and Fe/CoNi Biphase Microwires	
I. Iglesias, R. El Kammouni, K. Chichay, M. Vazquez and V. Rodionova	265
Manipulation of Magnetic Properties and Domain Wall Dynamics of Amorphous Ferromagnetic Co_{68.7}Fe₄Ni₁B₁₃Si₁₁Mo_{2.3} Microwire by Changing of Annealing Temperature	
K. Chichay, V. Rodionova, M. Ipatov, V. Zhukova and A. Zhukov	269
Pressure Effects on Transport Properties of (La_{0.85}Sr_{0.15})_yMnO₃ Single Crystals	
A. Shakin, D. Abashev, D. Shulyatev, R. Privezentsev, N. Andreev and Y. Mukovskii	273
Structural and Magnetic Properties of Fe_{73.5}Si_{13.5}B₉Nb₃Cu₁ Microwires Produced by Modernized Ulitovsky-Taylor Method	
E.E. Shalygina, A.N. Shalygin, A.M. Kharlamova, V.V. Molokanov, T.R. Chueva, P.P. Umnov and N.V. Umnova	277
Effect of Current Annealing on Domain Wall Dynamics in Bistable FeCoMoB Microwires	
P. Klein, R. Varga, V. Komanicky, G. Badini-Confalonieri and M. Vázquez	281
Influence of the Defects on Magnetic Properties of Glass-Coated Microwires	
V. Zhukova, E. Shuvaeva, M. Churyukanova, S. Kaloshkin, A. Talaat, M. Ipatov and A. Zhukov	285

Chapter 5: Magnetic Soft Matter

About the Importance of Choosing Bidisperse Approximation for Describing Real-World Polydisperse Ferrofluids	
E. Novak	293
Effects of a Superparamagnetic State of Particles of a Paraffin Based Magnetic Colloid	
Y. Dikansky, A. Ispiryan, S. Kunikin and A. Radionov	297
Influence of Rotation on the Magnetization of Dilute Suspensions of Magnetic Particles	
A. Tyatyushkin	302
Macroproperties of the Magnetic Systems with Anisotropic Microstructural Units	
E. Pyanzina	306
Magnetic Properties of Magnetic Hydrogels	
L.V. Nikitin, A.A. Gladkov and A.E. Korovushkin	310
Optical Properties of Aggregated Magnetic Fluid: Birefringence and Light Scattering	
C.V. Yerin	314
Structural Organization in Magnetic Fluids with Magnetized Aggregates in Rotating Magnetic Field	
D.V. Gladkikh, Y.I. Dikansky and A.A. Kolesnikova	318
Structure Properties in a Bidisperse Ferrofluid in the Absence of an External Magnetic Field	
Y.E. Nekhoroshkova and E.A. Elfimova	323
The Study of the Mobility Coefficient for Chain Aggregates in Quasi-Two-Dimensional Samples of Magnetic Fluids	
A. Muratova	327
Thermodynamics of Bidisperse Ferrofluids in Zero External Magnetic Field: Theory and Simulations	
A.Y. Solovyova and E.A. Elfimova	331

Magnetic Fluid Bridge between Coaxial Cylinders with a Line Conductor in Case of Wetting	
A. Vinogradova, V. Naletova and V. Turkov	335
Heat Transfer in Boiling Magnetic Fluid in a Magnetic Field	
A.A. Yanovskiy, A.Y. Simonovsky, V.L. Kholopov and I.Y. Chuenkova	339
The Influence of a Rotating Magnetic Field on the Sample with Magnetizable Materials near the Vessel Bottom	
D. Pelevina, V. Turkov, S. Kalmykov and V. Naletova	343

Chapter 6: Multiferroics

Magnetic Field Tunable Electromechanical Resonance Properties of Magnetoelectric Bilayer	
R.V. Petrov, V.M. Petrov, D.V. Kovalenko, G.A. Semenov and M.I. Bichurin	349
Magnetoelectric Effect in Ferrite-Piezoelectric Dual-Phase Structure	
R.V. Petrov, A.S. Tatarenko, V.M. Petrov and M.I. Bichurin	353
Temperature Characteristics of Magnetoelectric Effect in Bilayer Ferromagnetic-Piezoelectric Structures	
D. Burdin, D. Chashin, N. Ekonomov and Y. Fetisov	357
Magnetic Properties of $\text{Pr}_x\text{Y}_{1-x}\text{Fe}_3(\text{BO}_3)_4$	
A.I. Pankrats, A.A. Demidov, D.A. Velikanov, V.I. Tugarinov and V.L. Temerov	360
Universal Hysteresis Behavior of Double Perovskite $\text{Ba}_{2-x}\text{La}_x\text{FeMoO}_6$	
D. Handoko, T.T. Dang, D. Nanto, S.C. Yu, S.K. Oh, D.H. Kim, S.E. Demyanov, N.A. Kalanda, D. Handoko, M.V. Yarmolich and L.V. Kovalev	364
Magnetic and Magnetoelectric Properties of $\text{Sm}_{1-x}\text{La}_x\text{Fe}_3(\text{BO}_3)_4$ Single Crystals	
E.V. Eremin, N.V. Volkov, I.A. Gudim and V.L. Temerov	368
Crystal and Magnetic State of Multiferroic Composites $(x)\text{MFe}_2\text{O}_4 + (1-x)\text{BaTiO}_3$, $\text{M} = \text{Ni, Co}$	
A.P. Nosov, M.A. Semkin, A.E. Teplykh, S.G. Bogdanov, N.V. Urusova, Y.N. Skryabin, A.N. Pirogov, V.G. Vasiliev, E.V. Vladimirova and T.S. Karpova	371
Charge Ordering of Multiferroic LuFe_2O_4: Influence of Doping and Electric Field	
D.A. Maslov and Y.B. Kudasov	375
Monte Carlo Modelling of Two Dimensional Multiferroics	
S.J. Lamekhov, I.V. Bychkov, D.A. Kuzmin and V.G. Shavrov	379
The Correlations between Dynamic Interactions in Antiferromagnetic Multiferroics	
M.K. Kharrasov, I.R. Kyzyrgulov, I.F. Sharafullin and A.G. Nugumanov	383
Effect of Corona Treatment on Magnetic Properties of Nanoscaled Multiferroic Films BiFeO_3, $(\text{BiLa})\text{FeO}_3$ and $(\text{BiNd})\text{FeO}_3$	
V.G. Kostishyn, N.N. Krupa, L.V. Panina, V.V. Nevdacha, D.N. Chitanov, V.M. Truhan and N.A. Yudanov	388

Chapter 7: Spintronics and Magnetotransport

Hall Effect Induced by Spin-Wave Excitation in Metal/Ferromagnetic Insulator Bilayer	
A. Vedyayev, M. Zhuravlev, M. Titova, D. Gusakova and N. Ryzhanova	395
Spin-Injection Stimulated Radiation of Terahertz Waves in Magnetic Junctions (“Twaser” Action)	
A.V. Chernych, S.G. Chigarev, Y.V. Gulyaev, G.M. Mikhailov, A.I. Panas, E.A. Vilkov and P.E. Zilberman	399
Anomalous Hall Effect in $(\text{Co}_{41}\text{Fe}_{39}\text{B}_{20})_x(\text{Al-O})_{100-x}$ Nanocomposites: Temperature Dependence	
Y.O. Mikhailovsky, V.N. Prudnikov, K.Y. Chernoglazov, V.V. Rylkov, S.N. Nikolaev, A.V. Sitnikov, Y.E. Kalinin, D. Bartov, A. Gerber and A.B. Granovsky	403
Numerical Simulation of Spin Torque Induced by Spin Hall Effect in CuPt/Fe Heterostructure	
T. Andrianov, Y. Gritsenko, N. Strelkov, N. Ryzhanova and A. Vedyayev	407

Structural, Magnetic and Electric Transport Properties for $\text{Co}_2\text{FeAl}_{0.5}\text{Si}_{0.5}/\text{n-GaAs}$ Junctions	
N. Tezuka, T. Saito, M. Matsuura and S. Sugimoto	411
Simultaneous Localization of Electrons in Different Δ-Valleys in Ge/Si Quantum Dot Structures	
A. Zinovieva, N. Stepina, A.V. Dvurechenskii, L. Kulik, G. Mussler, J. Moers and D. Grützmacher	415
Magnetoresistance and Magnetic Properties $\text{Ce}_x\text{Mn}_{1-x}\text{S}$	
S.S. Aplesnin, M.N. Sitnikov, O.B. Romanova, E.V. Eremin, V.V. Sokolov and A.Y. Pichugin	419
Magnetic and Magnetoresistance Properties of $(\text{Co/Ge})_n$ Films	
G. Patrin, I. Turpanov, E. Maruschenko, K. Patrin, A. Kobayakov, V. Maltsev and V. Yushkov	423
Enhancement of Exchange Bias in NiFe/IrM, IrMn/NiFe and NiFe/IrMn/NiFe Structures with Different Thickness of Antiferromagnetic Layer	
V. Rodionova, I. Dzhun, K. Chichay, S. Shevyrtaiov and N. Chechenin	427
Bifurcations in the Dynamical System for Three-Layered Magnetic Valve	
N. Ostrovskaya, V. Skidanov and I. Iusipova	431
Peculiarity of Solitary Deflection Waves Dynamics on the Domain Walls of Yttrium Orthoferrite	
M.V. Chetkin, Y.N. Kurbatova and T.B. Shapaeva	435
Ferromagnetic State of LaMnO_3 Interlayer in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3/\text{LaMnO}_3/\text{SrRuO}_3$ Heterostructures	
A.M. Petrzlik, Y.N. Khaydukov, L. Mustafa, V.V. Demidov and G.A. Ovsyannikov	439
The Influence of the Magnetic Field on Electrically Induced Domain Wall Motion	
D.A. Sechin, E.P. Nikolaeva, A.P. Pyatakov, A.B. Nikolaev and T.B. Kosykh	443
Peculiarities of Transport, Resonance and Optical Properties of the Anion-Substituted Manganese Chalcogenides	
O.B. Romanova, S.S. Aplesnin, A.M. Vorotynov, G.I. Makovetskii, O.F. Demidenko and K.I. Yanushkevich	447
The Bias-Controlled Magnetoimpedance Effect in a MIS Structure	
D.A. Smolyakov, A.S. Tarasov, A.O. Gustaitsev and N.V. Volkov	451
Anomalous Galvanomagnetic Effects due to Spontaneous Spin Polarization of Electrons in Crystal with Low Concentration of 3d-Transition Element Impurities	
A.T. Lonchakov, V.I. Okulov, E.A. Pamyatnykh, T.E. Govorkova, M.A. Andriichuk, L.D. Paranchich, S.B. Bobin and V.V. Deryushkin	456

Chapter 8: High Frequency Properties

Bias Current Effect on Second Harmonic in Asymmetric Magnetoimpedance Response in Amorphous Microwires	
N.A. Buznikov, A.S. Antonov and A.B. Granovsky	463
High-Frequency Properties of Multilayer Systems Based on the $(\text{Co}_{41}\text{Fe}_{39}\text{B}_{20})_x(\text{SiO}_2)_{100-x}$ and $(\text{Co}_{45}\text{Fe}_{45}\text{Zr}_{10})_x(\text{Al}_2\text{O}_3)_{100-x}$ Nanocomposites	
H. Al Azzawi, Y. Kalinin, A. Sitnikov and O. Tarasova	467
Investigation of Nonlinear Dynamics of Magnetoelastic Oscillations in Normal Magnetized Ferrite Plate	
D. Pleshev, V.S. Vlasov, L.N. Kotov, F.F. Asadullin, S.M. Polesnikov, V.G. Shavrov and V.I. Shcheglov	471
Microwave Magnetic Induction Structure of the Surface Spin Wave in Ferrite Film	
E.H. Lock	476
Hypersound Excitation in the Ferrite Plate by Impulse Magnetization Reversal	
V.S. Vlasov, D. Pleshev, L.N. Kotov, V.G. Shavrov, V.I. Shcheglov, F.F. Asadullin and S.M. Polesnikov	480
Concentration Dependences of Exchange Fields in Composite and Multilayer Thin Films	
A.V. Golov, L.N. Kotov, V.S. Vlasov, F.F. Asadullin, Y.E. Kalinin and A.V. Sitnikov	485
Study of the Torque Acting on the Magnetization during 90° Pulsed Reversal Process in Ferrite-Garnet Films with In-Plane Anisotropy	
O.S. Kolotov, A.V. Matyunin, G.M. Nikoladze and P.A. Polyakov	490

Chapter 9: Nanostructures and Low Dimensional Magnetism

AC Magnetic Susceptibility Study in Co/Au Nanoparticles P. Hrubovčák, A. Zelenáková, V. Želeňák and J. Michalíková	497
Anisotropic Magnetoresistance and Weak Localization in Granular System Ni-MgO A. Grebennikov and O. Stognei	501
Peculiarities of the Interface Forming in the “Nanocomposite-Bismuth Telluride” Multilayer System G.S. Zykov, E.A. Gan'shina, A.I. Novikov, Y.E. Kalinin and A.V. Sitnikov	505
Room Temperature Instability of Exchange Anisotropy in FeMn/FeCo System E. Jiménez, N. Mikuszeit, D.R. Cavicchia, L. Rossi and F. D'Orazio	509
Surface Modified Ni Nanoparticles Produced by the Electrical Explosion of Wire A.P. Safronov, G.V. Kurlyandskaya, S.M. Bhagat, I.V. Beketov, A.M. Murzakaev, I. Orue and A. Larrañaga	513
Unidirectional Anisotropy in Nanostructures with Antiferromagnetic NiFeMn Layer I.V. Blinov, T.P. Krinitsina, M.A. Milyaev, V.V. Popov and V.V. Ustinov	517
Temperature Behavior of Magnetization in Multiphase Co-P Powders in Unsaturated Regime O.Á. Li, S.V. Komogortsev, R.S. Iskhakov, L.A. Chekanova and E.V. Eremin	522
Spectral Ellipsometry of Cobalt-Ions Implanted Silicon Surface V.V. Bazarov, V.F. Valeev, V.I. Nuzhdin, Y.N. Osin, G.G. Gumarov and A.L. Stepanov	526
Oxygen Effect on Magnetic Anisotropy Energy of Co Nanowires on Cu(210) Surface - An <i>Ab Initio</i> Study J. Korobova, D. Bazhanov and I. Kamynina	530
New Iron(II) Complexes [Fe(HC(Pz)₃)₂]₂A₂ with Spin-Crossover O.G. Shakirova, N.V. Kuratieva, E.V. Korotaev and L.G. Lavrenova	534
Magnetic Properties of Nanocomposites Metal-Carbon A. Aleshnikov, H.S.M. Al-Azzawi, Y. Kalinin, A. Sitnikov and O. Tarasova	538
Magnetic Resonance in CuCr₂S₄ Nanoclusters and Nanocrystals A. Pankrats, A. Vorotynov, V. Tugarinov, S. Zharkov, G. Abramova, G. Zeer, K. Ramasamy and A. Gupta	542
<i>Ab Initio</i> Study of the Oxygen Effect on Magnetic Interactions within 3d Metal Nanowires on Vicinal Rh (553) Surface I. Kamynina, D. Bazhanov and J. Korobova	546
Anisotropy in FeCo Nanoparticles, a First Step G. Khadra, A. Tamion, F. Tornus, B. Canut and V. Dupuis	550
Dependence of the Hysteresis Characteristics of Co-Au Core-Shell Nanoparticles on the Size of the Particles M.A. Chernova, L.L. Afremov and I.G. Iliushin	554
Easy Axis Spin-Flop in ϵ-Phase In-Doped Iron (III) Oxide Nanowires A.I. Dmitriev, O.V. Koplak, A. Namai, H. Tokoro, S. Ohkoshi and R.B. Morgunov	558
Electronic Properties and Stability of Silicon Nanoclusters Passivated by Hydrogen V. Baturin, S. Lepeshkin, N. Matsko and Y. Uspenskii	562
FMR and Magnetic Properties of (CoFeB)_m(SiO₂)_{100-m} Nanocomposite S. Vyzulin, N. Syr'ev and M. Shlapakov	567
Fourfold Magnetic Anisotropy of CoPd Alloy, Obtained by Solid State Reactions in Epitaxial Pd/hcp-Co and Pd/fcc-Co Bilayers V.G. Myagkov, L.E. Bykova, V.S. Zhigalov, I.A. Tambasov, G.N. Bondarenko and A.A. Matsynin	571
Free-Standing 2D Silicon Nanocrystals Stabilized with Perfluorophenyl Ligands: Experiment and <i>Ab Initio</i> Research L. Aslanov, I. Kudryavtsev, V. Zakharov, E. Kulatov and Y. Uspenskii	575
Magnetic and Magnetotransport Properties of Fe-NbO System A. Grebennikov, O. Stognei, K. Semenenko and T. Tregubova	579

Magnetic Anisotropy of Co-Nanostructures Embedded in Matrices with Different Pores Size and Morphology E.A. Denisova, L. Chekanova, R. Iskhakov, S. Komogortsev, I. Nemtsev, D. Velikanov and S. Mel'nikova	583
Magnetic Clusters in Natural Ferro-Chromian Spinel T. Sherendo, V. Mitrofanov, A. Vdovin, P. Martyshko, A. Alexeev, D. Zamyatin, V. Vazhenin and L. Pamyatnykh	587
Structure and Magnetic Properties of FeNi/Ti Multilayered Films Grown by Magnetron Sputtering A.V. Svalov, V.O. Vas'kovskiy, A. Larrañaga and G.V. Kurlyandskaya	591
Optical Second Harmonic Generation in Nanostructures with Inhomogeneous Magnetization I.A. Kolmychek, V.L. Krutyanskiy, T. Murzina, E.A. Karashtin, M.V. Sapozhnikov and A.A. Fraerman	595
Magnetic and Magneto-Optical Properties of Magnetoplasmonic Crystals V. Belyaev, A. Grunin, A. Fedyanin and V. Rodionova	599
Magneto-Optical Properties of Multilayer Nanostructures with Composite Magnetic Layers near Percolation Threshold V. Buravtsova, E. Gan'shina, Y. Kalinin, A. Sitnikov and D. Zubakin	603
Magnetodeformational Anisotropy of FeGa/PU Hybrid Nanocomposite via Particle Concentration and Spatial Orientation T.Y. Kiseleva, S.I. Zholudev, A.A. Novakova, T.S. Gendler, I.A. Il'inykh, A.I. Smarzhevskaya, Y. Anufriev and T.F. Grigorieva	607
Nanocrystalline Soft Magnetic $(\text{Fe}_{0.7}\text{Co}_{0.3})_{88}\text{Hf}_2\text{W}_2\text{Mo}_2\text{Zr}_1\text{B}_4\text{Cu}_1$ Alloy with Enhanced Thermal Stability of Magnetic Properties V.A. Lukshina, N.V. Dmitrieva, E.G. Volkova, A.P. Potapov, B.N. Filippov and D.A. Shishkin	611
A New Method of Intergrain Exchange Interaction Energy Determination in Nanostructured Alloys with Spontaneous Spin-Reorientation Transition A.S. Volegov, A.S. Bolyachkin and N.V. Kudrevatykh	615
Components of Magnetic Anisotropy of Soft Magnetic Nanocrystalline Fe-Based Films E.V. Harin and E.N. Sheftel	619
Effect of Secondary Decomposition on Coercivity of Fe-Co-Cr Alloys with 15% Co V.P. Menushenkov and V.S. Shubakov	623
The Suppression of Demagnetizing Field Heterogeneity in Ferromagnetic Powders R. Yaroslavtsev, S. Komogortsev, L. Chekanova, L. Kuzovnikova, E.A. Denisova, O. Li, D. Velikanov and R. Iskhakov	629
Magnetic and Magnetoiresonance Studies of Composite Multilayer Films with Different Kinds of Interlayers I. Shipkova, J. Chekrygina, A. Devizenko, E. Lebedeva, N. Syr'ev and S. Vyzulin	633

Chapter 10: Magnetic Thin Films

Influence of the Size Effect on Magnetic Susceptibility in Ultrathin Films L.L. Afremov and A.A. Petrov	639
Spin Filtering on the MnSb Cluster Interface in GaSbMn Thin Films O. Koplak, A. Polyakov, A. Davydov, R. Morgunov, A. Talantsev, A. Kochura, I. Fedorchenko, O. Novodvorskiy, L. Parshina, B. Aronzon and E. Lähderanta	643
Magnetic Properties of Co-B Nanostructures Prepared via Electroless Deposition D. Richardson and F.M.F. Rhen	648
The Influence of Si on Magnetic and Magneto-Optical Properties of Co/Si/Co Thin-Film Systems E.E. Shalygina, E.A. Gan'shina, A.M. Kharlamova, A.N. Mukhin, G.V. Kurlyandskaya and A.V. Svalov	653
Surface Modification of Thin Iron Films in Aromatic Solvents at Ambient Conditions A.A. Chlenova, G.V. Kurlyandskaya, A.P. Safronov, A. Larrañaga, S. Fernandez Armas, I. Zalbidea Arechaga and V.N. Lepalovskiy	657
A Simple Model for Investigation of the Pair Breaking Effect on the Parameters of HTS/FM Thin Films T. Nurgaliev and L. Uspenskaya	662

Structural and Magnetic Properties of $\text{Ni}_{50}\text{Mn}_{35}\text{In}_{15}$ Thin Films S. Granovsky, I. Gaidukova, A. Sokolov, A. Devishvili and V. Snegirev	666
Structural and Transport Properties of $\text{Ni}_{45}\text{Mn}_{40}\text{In}_{15}$ Thin Films M.V. Lyange, M.V. Gorshenkov, A.V. Bogach, M. Ohtsuka, H. Miki, T. Takagi and V.V. Khovaylo	670
Temperature Dependent Magnetic and Structural Properties of $\text{Co}_2(\text{Fe}, \text{Ti})\text{Ga}$ Thin Films V. Rodionova, S. Shevyrtalov, K. Chichay, A. Okubo, R. Kainuma, R.Y. Umetsu, M. Ohtsuka, A. Bozhko, V. Golub, M. Gorshenkov, M. Lyange and V.V. Khovaylo	674
Surface Properties of Nanoscale Iron Garnet Films T.B. Kosykh, A.S. Prosyakov, A.P. Pyatakov, A.N. Shaposhnikov, A.R. Prokopov and I.V. Sharay	678
Ferromagnetic and Spin-Wave Resonance in $\text{Fe}_x\text{Ni}_{1-x}$ (0 I.G. Vazhenina, R.S. Iskhakov, L.A. Chekanova, S.V. Stolyar and V.Y. Yakovchuk	682
Morphology and Magnetic Properties of Amorphous Co-P and Co-Ni-P Films A.V. Chzhan, V.A. Seredkin, G.S. Patrin, V.N. Zabluda, Y.V. Zubavichus, Y.L. Mikhlin and R.Y. Rudenko	686
Magnetization Processes Study in the Implanted Garnet Films Using the Second-Harmonic Generation Effect A. Bonda, S. Uba and L. Uba	690
Thermoelectric Power of Gradient $\text{Fe}_x(\text{Al}_2\text{O}_3)_{100-x}$ Composite Films O. Stognei, A. Al-Maliki, A. Sitnikov and V. Makagonov	694
Influence of Annealing on the Surface Topography and Magnetic Properties of Thin Films of the FINEMET-Type Alloy E. Mikhailitsyna, V. Kataev, P. Geydt, V. Lepalovsky and E. Lähderanta	699
Magnetic Properties of NiFe and FeCuNbSiB Thin Films: Effect of Thickness on Static Permeability J. Moulin, I. Shahosseini, M. Woytasik, T.H.N. Dinh and O. Garel	705
Structural and Magnetic Properties of Annealed Vapor Deposited $\text{Co}_x\text{Cr}_{1-x}$ Thin Films A. Kharmouche	709
Effect of Co Doping on the Galvanomagnetic Properties of ZnO Thin Films V.G. Kytin, O.V. Reukova, D.D. Melnik, L.I. Burova, A.R. Kaul and V.A. Kulbachinskii	713
Magnetic Properties of Amorphous Hydrogenated Carbon Thin Films Doped by Ni I.G. Lukitsa, G.A. Nikolaychuk, O.Y. Moroz and V.M. Smirnov	717

Chapter 11: Magnetism and Superconductivity

On the Superconductivity of Planar Carbon Compounds R. Zaitsev	725
Anomalous Temperature Dependence of the Upper Critical Magnetic Field in Electron-Doped High-Temperature Superconductor T.B. Charikova, N.G. Shelushinina, G.I. Harus, V.N. Neverov, D.S. Petukhov, O.E. Petukhova and A.A. Ivanov	729
Copper Oxide Superconducting/Antiferromagnetic Interface Y. Kislinskii, K. Constantinian, G. Ovsyannikov, A. Shadrin, I. Borisenko, Y. Khaydukov, A. Sheyerman and A. Vasiliev	733
Current-Phase Relation of Superconductor-Ferromagnet-Superconductor Junctions with a Composite Interlayer A. Sheyerman, G. Ovsyannikov, Y. Kislinskii, K. Constantinian and A. Shadrin	737
Magnetic Prehistory in the Heat Capacity of the Low-Temperature Superconductors S.M. Podgornykh	741
Role of Interface Transparency and Exchange Field in the Superconducting Triplet Spin-Valve Effect R.G. Deminov, L.R. Tagirov, R.R. Gaifullin, Y.V. Fominov, T.Y. Karminskaya, M.Y. Kupriyanov and A.A. Golubov	745
Observation of Pinning Strengthening in “MgB_2 – CNT – α-Fe” Nanocomposites Studied by Microwave Absorption Technique V.V. Bazarov, P.N. Togulev, F.A. Nizamov, N.M. Lyadov, S.N. Ivicheva and N.M. Suleimanov	750

Chapter 12: Magnetism in Biology and Medicine

Combined Photodynamic Thermochemotherapy of Glial Tumors Controlled by MRI and Electronic Sensor

N.A. Brusentsov, V.A. Polianskiy, A.V. Zhukov, M.V. Gulyaev, M.P. Nikitin, P.I. Nikitin, T.N. Brusentsova, V.D. Kuznetsov, O.A. Bocharova and A.Y. Baryshnikov

757

Heating of Zn-Substituted Manganese Ferrite Magnetic Nanoparticles in Alternating Magnetic Field

T.M. Elkhova, A.K. Yakushechkina, A.S. Semisalova, Y.K. Gun'ko, Y.I. Spichkin, A.P. Pyatakov, K.I. Kamilov, N.S. Perov and A.M. Tishin

761

Mossbauer Study of Microbial Synthesis of Iron-Containing Nanoparticles

A.A. Shapkin, N.I. Chistyakova, D.G. Zavarzina, T.N. Zhilina and V.S. Rusakov

766

To the Theory of Hyperthermia Effect Induced by Magnetic Nanoparticles

A. Zubarev and A. Abu-Bakr

771