

## **ALEXANDER GRANOVSKY**

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### **Degrees**

M.Sc. in Solid State Physics, 1970, Moscow State University  
Ph. D. in Physics and Mathematics, 1976, Moscow State University  
Doctor of Physics and Mathematics (Advanced Degree), 1988, Moscow State University

### **Career/Employment** (employers, positions and dates):

1990 – present Professor, Moscow State University, Faculty of Physics,  
Magnetism Department, Moscow, Russia  
1988 – 1990 Head of Laboratory for Optical-Physical Measurements,  
All-Union Institute for Optical-Physical Measurements,  
Moscow, Russia  
1978 – 1988 Senior Researcher, All-Union Institute for Optical-Physical  
Measurements, Moscow, Russia  
1975 – 1978 Researcher, All-Union Institute for Optical-Physical  
Measurements, Moscow, Russia

**Visiting Professor** of Liege University (Belgium), University of Provence (France),  
Tokyo Metropolitan University (Japan), Chungnam National University (South  
Korea), National University of Singapore (Singapore), Toyohashi University of  
Technology (Japan), University of Basque Country (San Sebastian, Spain)

### **Honors and Awards**

- Professor of the Year 2005 (Award of Moscow for the best teacher of the year)
- Professor of the Year 2004 (Award of Moscow for the best teacher of the year)
- Fellowship from Russian Academy of Science (2000-2003)
- Invitation Fellowship from Japan Society for the Promotion of Science (2001)
- Soros Professor (International Science Foundation Award, 2002)

**Grants** Russian Foundation for Basic Research, International Science  
Foundation, INTAS, NATO, Ministry of Education of Russia,  
International Scientific-Technical Center

### **Scientific Activities**

- Author/coauthor of 2 books
- Author/coauthor of over 160 papers in refereed journals, over 50 papers in proceedings of conferences, over 30 invited talks, of 2 patents and 11 inventions
- Membership of Magnetic Society of Russia

- Membership of the Council of Magnetism of Russian Academy of Science
- Membership of the Council of Magnetism of Russian Foundation for Basic Research
- Membership of the Committee C-9 of IUPAP (2005-2011)
- Membership of the Editorial Board of the Journal of Material Science
- Membership of the Editorial Board of the Journal of Magnetism and Magnetic Materials (2008-2011)
- Membership of the Editorial Board of the Journal of Spintronics and Magnetic Nanomaterials
- Membership of the Editorial Board of the Journal SPIN
- Membership of the Advisory Committee of the Basque Center for Materials
- Chairman of the Moscow International Symposium on Magnetism
- Membership of Organizing Committees of International Conferences, Symposiums and Workshops on Magnetism (ICM, EASTMAG, NMMM, SOMMA, ISAMMA, Nanomagnetism etc)

### **Topics of interest**

- Spin-dependent transport in nanostructured materials (magnetoresistance, Extraordinary Hall Effect, planar Hall effect, spin injection, influence of quantum well states, quantum and quasi-classical size effects) and its application in spintronics
- Enhanced magneto-optical properties of nanostructured materials
- Magnetophotonic crystals
- Spin-dependent high frequency tunneling in magnetic tunnel junctions and nanogranular alloys
- Giant magneto-impedance and magnetic sensors based on giant magneto-impedance
- Magnetic semiconductors and oxides
- Novel functional materials

### **Main Achievements**

- Developed quantum-statistical theory of the Extraordinary Hall effect in disordered ferromagnetic alloys, amorphous alloys, spin glasses, and granular alloys.
- Developed theory of magneto-optical spectra in magnetic granular alloys.
- Proposed and developed ultrafast laser detectors based on the anisotropic thermopower in thin films.
- Proposed a pump-probe method for studying of ultrafast spin dynamics in ferromagnets and estimated characteristic times of the energy

exchange between electron, magnetic and phonon subsystems of nickel.

- Investigated theoretically the giant magneto-impedance at high frequencies; proposed a novel magneto-impedance element with enhanced sensitivity – composite wire.
- Predicted, developed a theory, and explained experimental results on the magnetorefractive effect in magnetic nanogranular alloys with giant and tunnel magnetoresistance
- Developed theory of magnetophotonic crystals.
- Predicted, developed a theory, and explained experimental results on the optical Tamm states in magnetophotonic heterostructures
- Investigated the giant Hall effect in Heusler alloys

## **LIST of MAIN PUBLICATIONS of Prof. ALEXANDER GRANOVSKY (GRANOVSKII and GRANOVSKIY) in 1975-2012**

### **(I) Books and literatures**

1. A.Vedyaev, **A.Granovsky**, and O.Kotelnikova  
Transport phenomena in disordered ferromagnetic alloys  
// Moscow State University publishing company. 1992, pp. 1-158 (in Russian)
2. A. Abdurakhmanov, E. Gavrilov, and **A.Granovsky**  
Quantum theory of many-body system // Publishing company of Makhachkala University, Dagestan, 1992, pp.1-110 (in Russian)

### **(II) Regular papers and conference proceedings**

1. **A.Granovsky** and E.Kondorsky,  
On the theory of extraordinary Hall effect: Electron- phonon interaction  
//Phys.Metal.Metalloved. **39** (1975) 713-721
2. A.Vedyaev, **A.Granovsky**, and E.Kondorsky,  
On the theory of residual extraordinary Hall effect in disordered alloys.I.  
//Phys.Metal.Metalloved. **40** (1975) 455-463  
On the theory of residual extraordinary Hall effect in disordered alloys.II.  
//Phys.Metal.Metalloved. **40** (1975) 903-910  
On the theory of residual extraordinary Hall effect in disordered alloys.  
Weak scattering.  
//Phys.Metal.Metalloved. **40** (1975) 602-610
3. **A.Granovsky**,  
The theory of extraordinary Hall effect in disordered alloys at high temperatures  
// Vestnik Moskovskogo Universiteta, fiz. N.6 (1975) 711-721

4. E.Kondorsky, A.Vedyayev, **A.Granovsky**, and M.Nshanyan,  
On the theory of optical absorption in disordered binary alloys of transition metals  
// Physics of the Solid State 17 (1975) 3249-3254
5. E. Kondorsky, A.Vedyayev, **A.Granovsky**, and M.Nshanyan,  
On the theory of magneto-optical properties of disordered ferromagnetic alloys  
// Physics of Solid State 18 (1976) 1085-1090
6. **A.Granovsky** and M.Nshanyan,  
On the theory of magneto-optical absorption in disordered alloys  
// Izvestia Vuzov. Fiz. N.9 (1976) 95-101
7. B.Abakumov and **A.Granovsky**,  
Magnetization distribution in thin films with stripe domain structure  
// Fiz. Metal. Metalloved. 43 (1977) 766-772
8. B.Abakumov and **A.Granovsky**,  
Two-dimensional model of magnetization distribution in thin films with stripe domain structure  
// Phys. Metal. Metalloved. 46 (1978) 50-59
9. A.Vedyayev, **A.Granovsky**, and O.Kotelnikova,  
To the theory of transport phenomena in disordered alloys in coherent potential approximation  
// Phys. Solid State 20 (1978) 166-172
10. A.Vedyayev, **A.Granovsky**, and O.Kotelnikova,  
Short order effect on alloy electronic structure and conductivity (coherent potential approximation)  
// Physics of Solid State 21 (1979) 961-967
11. **A.Granovsky**, G.Rukman and B.Stepanov,  
Spectral transformation of optical radiation with thin magnetic film  
// Quantum Electronics 15 (1978) 2466-2469
12. B.Abakumov, **A.Granovsky**, and V.Pogojev,  
Pulse magnetization of permalloy films with stripe domain structure  
// Phys. Metal. Metalloved. 47 (1979) 213-219
13. A.Vedyayev, **A.Granovsky**, and E.Kaminskay,  
The theory of extraordinary Hall effect in spin glasses  
// Pis'ma Zh.Eksp.Teor.Fiz (JETP Lett.) 31 (1979) 685-689
14. A.Benditskii, **A.Granovsky**, and G.Rukman,  
Nonstationary thermopower at heating metal by picosecond laser pulsers  
// Phys. Solid State 22 (1980) 1877-1880
15. **A.Granovsky**, A.Benditskii, and G.Rukman,  
Nonstationary Nernst-Ettingshausen effect of hot electrons in metals  
// Fiz. Metal. Metalloved. 54 (1982) 405-408
16. A.Vedyayev, **A.Granovsky**, and O.Kotelnikova,  
Anomalies in concentration dependence of time of life for conductivity electrons in ferromagnetic alloys with sd exchange  
// Phys. Metal. Metalloved. 53 (1982) 862-870
17. **A.Granovsky**, A.Benditskii, and G.Rukman,  
Thermopower of island metal films // Fiz. Metal. Metalloved. 55 (1983) 107-112

18. A.Vedyayev, **A.Granovsky**, and O.Kotelnikova,  
Conductivity of disordered ferromagnetic alloys with sd exchange interaction  
//Phys. Metal. Metalloved. 56 (1983) 1084-1089
19. A.Benditskii, **A.Granovsky**, G.Rukman, and B.Stepanov,  
On mechanism of illumination of surface of some materials at laser irradiation  
// Quantum Electronics 11 (1984) 1269-1274
20. A.Agranat, A.Ashitkov, **A.Granovsky**, G.Rukman, and B.Stepanov,  
Interaction of picosecond laser pulses with electron, spin and phonon subsystems of nickel // Zh.Eksp.Teor.Fiz. (JETP) 86 (1984) 1376-1382.
21. A.Benditskii, **A.Granovsky**, and G.Rukman,  
Electron emission of island films under CO<sub>2</sub> laser irradiation  
// Phys. Solid State 26 (1984) 1519-1523
22. A.Vedyayev and **A.Granovsky**,  
Theory of extraordinary Hall effect in amorphous ferromagnets  
// Phys. Metal.Metalloved. 58 (1984) 1084-1090
23. V.Andreev, **A.Granovsky**, B.Stepanov, and V.Yakovlev,  
Low inertia non-cooled detector of CO<sub>2</sub> laser pulses  
// Quantum Electronics 12 (1985) 1295-1297
24. V.Andreev, V.Zubenko, **A.Granovsky**, and N.Hatanova,  
Thermopower anisotropy and microstructure of inclined sputtered Bi thin films  
// Phys. Metal. Metalloved. 61 (1986) 532-538
25. A.Vedyayev, **A.Granovsky** and M.Usmanov,  
On the theory of magneto-optical properties in amorphous metallic alloys  
// Vestnik Moskovskogo Universiteta, fiz. 27 (1986) 38-44
26. A.Vedyayev and **A.Granovsky**,  
Extraordinary Hall effect at hopping transport// Phys. Solid State 28 (1986)  
2310-2314
27. A.Abdurakhmanov, R.Vasilieva, **A.Granovsky**, and S..Stadnik,  
Extraordinary Nernst-Ettingshausen effect in disordered alloys  
// Vestnik Moskovskogo Universiteta, fiz. 28 (1987) 68-74
28. **A.Granovsky**, O.Kuvandikov,  
Hall effect in amorphous and crystalline alloys of transition metals  
// Phys.Metal.Metalloved. 63 (1987) 301-307
29. A.Vedyayev, A.Voloshinsky, **A.Granovsky**, and N.Ryzhanova,  
Extraordinary Hall effect in disordered ferromagnetic alloys of transition metals  
// Izv. Vuzov. Fiz. N.1 (1987) 66-86
30. A.Vedyayev and **A.Granovsky**,  
Electroresistivity of amorphous ferromagnetic alloys in the Ziman-Faber model  
// Phys.Metal.Metalloved. 63 (1987) 1076-1082
31. A.Arsenieva, **A.Granovsky**, and A.Vedyayev,  
Non-effective scattering of current electrons on spin waves in high resistive amorphous magnets // Phys. Solid State 31 (1989) 227-229

32. A.Abov, **A.Granovsky**, M.Usmanov, and V.Ygai,  
The change of biotite magnetization under neutron irradiation  
// Phys. Solid State 32 (1990) 2479-2482
33. V.Andreev, V.Zubenko, **A.Granovsky**, and N.Hatanova,  
Influence of microstructure on anisotropy of thermopower in inclined sputtered  
Bi thin films on glass and silica substrates // Phys.Metal.Metalloved. N.2 (1991)  
79-85
34. A.Arsenieva, **A.Granovsky**, and A.Vedyayev,  
Extraordinary Nernst-Ettingshausen effect in amorphous ferromagnetic alloys  
// J.Magn.Magn.Mat. 99 (1991) 190-194
35. A.Arsenieva, **A.Granovsky**, and A.Vedyayev,  
Extraordinary Hall effect in amorphous ferromagnetic alloys  
//J.Magn.Magn.Mat. 99 (1991) 167-171
36. A.Arsenieva, **A.Granovsky**, and A.Vedyayev,  
Anomalous Nernst-Ettingshausen effect in amorphous ferromagnets  
// Phys. Solid State 33 (1991) 25-29
37. I. Khalilov, **A.Granovsky**, and A.Vedyayev,  
Electroresistivity and Hall effect in disordered alloys  $Ag_{1-x}Au_x$  in sd model  
// Phys.Metal.Metalloved. N.7 (1991) 25-30
38. **A.Granovsky** and I.Khalilov,  
Electroresistivity and Hall effect in disordered alloys  $Cu_{1-x}Ti_x$  in sd model  
// Vestnik Moskovskogo Universiteta, fiz. 32 (1991) 61-66
39. A.Arsenieva, **A.Granovsky**, and A.Vedyayev,  
Thermopower in amorphous ferromagnetic alloys  
// Vestnik Moskovskogo Universiteta, fiz. 32 (1991) 71-75
40. **A.Granovsky** and I.Imamlijinov,  
Lorentz magnetoresistance in disordered alloys in coherent potential approximation  
//Vestnik Moskovskogo Universiteta, fiz. 33 (1992) 78-82
41. R.Vasilieva, **A.Granovsky**, S.Stadnik, and G. Myalikhuliev,  
Extraordinary Nernst-Ettingshausen effect in disordered crystalline alloys Ni-Co  
//Vestnik Moskovskogo Universiteta, fiz. 35 (1994) 68-74
42. **A.Granovsky**, A.Vedyayev, and F.Brouers ,  
Extraordinary Hall effect in ferromagnetic composites  
// J.Magn.Magn.Mat. 136 ( 1994) 229-234
43. B.Dieny, **A.Granovsky** A.Vedyayev et al.,  
Recent results on the giant magnetoresistance in magnetic multilayers  
// J.Magn.Magn.Mat. 151(1995) 378-387
44. **A.Granovsky**, A.Vedyayev, and A.Kalitsov,  
Anisotropy of giant magnetoresistance in magnetic multilayers and granular alloys  
// Phys. Solid State 37 (1995) 337-343
45. A.Granovsky, R.Vasilieva, S.Stadnik, and G.Myalikhuliev,  
Influence of magnetosriction deformations on anisotropy of transport phenomena in

- monocrystalline alloys Ni-Pd //Vestnik Moskovskogo Universiteta, fiz. 36 (1995) 93-96
46. **A.Granovsky**, A.Vedyaev, B.Dieny, A.Kalitsov, and M.Chshiev,  
Quantum-statistical calculation of spontaneous anisotropy of giant magnetoresistance in spin-valve sandwich // Phys. Solid State 38 (1996) 2471-2478
  47. **A.Granovsky** and R.Vasilieva,  
Transport phenomena in Fe-Co-Si-B amorphous ferromagnetic alloys  
// J.Magn.Magn.Mat. 161 (1996) 195-198
  48. M.Prudnikova, **A.Granovsky**, V.Prudnikov, and T.Kozlova,  
Hall effect and magnetoresistance in amorphous alloys Fe-B  
// J.Magn.Magn.Mat. 166 (1997) 201-206
  49. **A.Granovsky**, F.Brouers, A.Kalitsov, and M.Chshiev,  
Extraordinary Hall effect in magnetic granular alloys  
// J.Magn.Magn.Mat. 166 (1997) 193-200
  50. A.Antonov, **A.Granovsky**, and N.Usov,  
The theory of giant magneto-impedance in composite amorphous wire  
// J.Magn.Magn.Mat. 171 (1997) 64-68
  51. F.Brouers, **A.Granovsky**, A.Sarychev, and A.Kalitsov,  
The influence of boundary scattering on transport phenomena in ferromagnetic metal-dielectric nanocomposites// Physica A 241 (1997) 284-288
  52. E.Ganshina, **A.Granovsky**, V.Guschin, M.Kuzmichev, P.Podrugin, and A.Kravetz,  
Optical and magneto-optical spectra of magnetic granular alloys  
//Physica A 241 (1997) 45-51
  53. A.Antonov, S.Gadetsky, **A.Granovsky**, A.Dyachkov, A.Lagarkov, N.Perov, A.Prokoshin, and N.Usov,  
High frequency giant magneto-impedance in multilayered magnetic films  
// Physica A241 (1997) 414-419
  54. A.Antonov, S.Gadetsky, **A.Granovsky**, A.Dyachkov, N.Perov, A.Prokoshin, and N.Usov,  
Giant magneto-impedance in amorphous and nanocrystalline multilayers  
// Phys. Metal. Metalloved. N.6 (1997) 60-71
  55. A.Antonov, **A.Granovsky**, A.Lagarkov, and N.Usov,  
The features of GMI effect in amorphous wires at microwaves  
// Physica A241 (1997) 420-424
  56. **A.Granovsky**, A.Kalitsov, and F.Brouers,  
The field dependence of extraordinary Hall effect in granular alloys with giant magnetoresistance // JETP Lett. **65** (1997) 481-484
  57. A. Vedyaev, **A.Granovsky**, A.Kalitsov, and M.Chshiev,  
Extraordinary Hall effect in granular alloys // JETP **112** (1997) 2198-2209
  58. E. Ganshina, **A.Granovsky**, and V.Guschin,  
Influence of the size and shape of magnetic particles on magneto-optical properties of (CoFe)Ag granular alloys// J.Magn.Magn.Mat. **165** (1997) 320-322

59. A.Agranat, A.Anisimov, A.Ashitkov, **A.Granovsky**, P.Kondratenko, and V.Fortov, Dynamics of phase transitions in amorphous magneto-optical films // JETP Lett. 67 (1998) 904-909
60. H.Khan, F.Brouers, E.Ganshina, **A.Granovsky**, J.P.Clerc, M.Kuzmichev, Magneto-optical spectra of ferromagnetic composites Co(CuO) // J. Magn.Magn.Mat. 183 (1998) 379-386
61. **A.Granovsky**, M.Kuzmichev, and J.P.Clerc, The symmetrised Maxwell-Garnett approximation for magneto-optical spectra of ferromagnetic composites// J.Magn.Soc.Japan 23 (1999) 382-386
62. A.Antonov, **A.Granovsky**, A.Prokoshin, A.Rakhmanov, N.Buznikov, N.Perov, A.Lagarkov, and N.Usov, Magnetic properties and magneto-impedance of cold-drawn permalloy-copper composite wires// IEEE Trans. Magn. 35 N 5, part 2 (1999)3640-3642
63. A.Granovsky, M.Prudnikova, V.Kovalev, V.Prudnikov, and H.Khan Violation of Mooij rule in ferromagnetic composites Co(CuO) and Co(Al-O) //Vestnik Moskovskogo Universiteta, fiz. N.5 (1999) 66-68
64. **A.Granovsky**, J.P.Clerc, and M.Kuzmichev, Specific features of optical and magneto-optical properties of granular alloys with GMR in IR range of spectrum // JETP 116 (1999) 1762-1767
65. **A.Granovsky**, V.Kovalev, and J.P.Clerc, Inverse magnetoresistance in ferromagnetic granular alloys // Vestnik Moskovskogo Universiteta, fiz. N.2 (2000) 60-63
66. E.Ganshina, **A.Granovsky**, B.Dieny, R.Kumaritova, and A.Yurasov, Specific features of magneto-optical spectra of hybrid multilayers Co/SiO<sub>2</sub> // Phys. Solid State 42 (2000) 1911-1913
67. I.Bykov, E.Ganshina, **A.Granovsky**, and V.Guschin, Magnetorefractive effect in granular alloys with tunnel magnetoresistance // Phys. Solid State 42 (2000) 487-491
68. B.Aronzon, **A.Granovsky**, D.Kovalev, E.Meilikhov, V.Rylkov and M.Sedova, Concentration dependence of extraordinary Hall effect in granular alloys Fe/SiO<sub>2</sub> below percolation threshold // JETP Lett. 71 (2000) 687-702
69. **A.Granovsky**, M.Kuzmichev, and A.Yurasov, Influence of quasi-classical size effect on optical and magneto-optical properties of granular alloys// Vestnik Moskovskogo Universiteta, fiz. N.6 (2000) 67-71
70. A.Drachenko, A.Yurasov, I.Bykov, E.Ganshina, **A.Granovsky**, V.Rylkov, D.Smirnov, J.Leotin, and B.Dieny, Optical properties of magnetic 2d nanocomposites in IR range of spectrum // Phys. Solid State 45 (2001) 932-934
71. A.Khanikaev, **A.Granovsky**, and J.P.Clerc, Influence of granular size distribution on percolation threshold in magnetic granular alloys // Vestnik Moskovskogo Universiteta, fiz. N.6 (2001) 49-52
72. V. Abdurakhmanov, **A.Granovsky**, A.Radkovskaya, M.Usmanov, Sh. Sharipov,



- and V.Yugai,  
Physical and chemical processes in biotite at thermal treatment  
// Vestnik Moskovskogo Universiteta, fiz. N.1 (2002) 38-44
73. V. Abdurakhmanov, **A.Granovsky**, A.Radkovskaya, M.Usmanov, Sh. Sharipov,  
and V.Yugai,  
Influence of neutron and proton irradiation on biotite magnetization  
// Physics of Solid State 44, N.2 (2002) 301-307
74. A.Granovsky, N. Perov, O. Filippov, A. Rakhmanov, J.P. Clerc,  
P. Bares,  
Mixtures of ferromagnetic and non-magnetic beads as a model of  
granular alloys: magnetic properties and impedance  
//J. Materials Science Forum **373-376** (2001) 573.
- 75.H. Akinaga, M. Mizuguchi, T. Manado, E. Ganshina, **A. Granovsky**,  
I. Rodin, A.Vinogradov, A. Yurasov, Enhanced magneto-optical  
response on magnetic nanoclusters embedded in semiconductor,  
J.Magn.Magn.Mat. **242-245**, part I, 470 (2002)
- 76.A. Khanikaev, **A.Granovsky**, J.P. Clerc, Influence of granular size  
distribution and interactions between them on the percolation  
threshold in granular alloys, Physics of Solid State **44**, 1611(2002)
- 77.J.P. Niepce, D. Stuerger, T. Caillot, J.P. Clerk, **A.Granovsky**,  
M.Inoue, N.Perov, G. Pourroy, A. Radkovskaya, The magnetic  
properties of magnetic nanoparticles produced by microwave flash  
synthesis of ferrous-alcoholic solutions, IEEE Trans. Magn. **38**, 2622  
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- 78.**A. Granovsky**, H.Sato, Y. Aoki, A. Yurasov, Tunneling thermopower  
in magnetic granular alloys, Physics of Solid State **44**, 2095 (2002).
- 79.A.S. Antonov, N.A. Buznikov, **A.B. Granovsky**, A.V. Joura, A.L.  
Rakhmanov, A.M. Yakunin, Domain-walls motion in glass-coated  
CoFeSiB amorphous microwires ,J.Magn.Magn.Mat. **249**, 95 (2002)
- 80.A.S. Antonov, N.A. Buznikov, **A.B. Granovsky**, I.T. Iakubov, A.F.  
Prokoshin, A.L. Rakhmanov, A.M. Yakunin, Magnetization reversal  
and nonlinear magnetoimpedance in Cu/NiFe and Nb/NiFe composite  
wires, J.Magn.Magn.Mat. **249**, 315 (2002)
- 81.**A.Granovsky**, A. Kalitsov, A. Khanikaev, H. Sato, Y. Aoki  
«Temperature dependence of the extraordinary Hall effect in magnetic  
granular alloys» J.Magn.Magn.Mat. **257/2-3**, 306 (2003)
- 82.A. B. Granovsky**, A. Kalitsov, A. Khanikaev, N.Kioussis «Influence  
of grain size on the extraordinary Hall effect in magnetic granular  
alloys» J.Magn.Magn.Mat. **258-259**, pp. 87-89, (2003)
83. **A. Granovsky**, M. Inoue «Magnetorefractive effect and cubic  
nonlinear magneto-optics in magnetic granular alloys» J.Magnetics  
(Magn. Soc. Korea) **8** n.1 p.45-50 (2003)

84. **A. Granovsky**, M. Kuzmichov, J.P. Clerc, M. Inoue «Effective-medium theory for nonlinear magneto-optics in magnetic granular alloys: cubic nonlinearity» *Journ. Magn. Mater.* **258-259** pp.103-105, (2003)
85. **A. Granovsky**, V. Guschin, I. Bykov, A. Kozlov, N. Kobayashi, S. Ohnuma, T. Masumoto, M. Inoue « Giant magnetorefractive effect in magnetic granular alloys CoFe-MgF» *Physics of Solid State* **45**, pp. 911-913 (2003)
86. **A. Granovsky**, I. Bykov, E. Ganshina, V. Guschin, M. Inoue, Yu. Kalinin, A. Kozlov, A. Yurasov «Magnetorefractive effect in magnetic nanocomposites» *JETP* **96** p.1104 (2003)
87. **A. Granovsky**, M. Inoue, J.P. Clerc, A. Yurasov «Magnetorefractive effect in nanocomposites: Dependence on the angle of incidence and on light polarization» *Physics of the Solid State* **46** n. 3 (2004) 498-501
88. A.P. Vinogradov, S.G. Erokhin, **A.B. Granovsky**, M. Inoue « Investigation of the Faraday effect in multilayer one-dimensional structures» *Journ. of Communications Technology and Electronics* **49** n. 1 (2004) 88
89. **A. Granovsky** and M. Inoue «Spin-dependent tunneling at infrared frequencies: magnetorefractive effect in nanocomposites» *J.Magn.Magn.Mat.* **272-276**, Suppl. 1 (2004) E1601-E1605
90. A. Kalitsov, A.Coho, N. Kiossis, A. Vedyayev, M. Chshiev, **A. Granovsky** «Impurity-induced tuning of quantum well states in spin-dependent resonant tunneling» *Phys. Rev. Lett.* **93** (2004) 04663
91. E.Gan'shina, K.Aimuta, **A.Granovsky**, M.Kochneva, P.Sherbak, M. Vashuk, K. Nishimura, M. Inoue «Optical and magneto-optical properties of magnetic nanocomposites FePt-SiO<sub>2</sub>» *J. Appl. Phys.* **95** n.11 (2004) 6882-6884
92. E.Gan'shina, M. Vashuk, A. Vinogradov, **A.Granovsky**, V. Gushchin, M. Kochneva, P.Shcherbak, Yu. Kalinin, A. Sitnikov, Chong-Oh Kim, Cheol Gi Kim, Evolution of optical and magneto-optical properties of amorphous metal-insulator nanocomposites, *JETP*, **98** (5), 1027 (2004).
93. B. Aronzon, **A. Granovsky**, S. Nikolaev, D. Kovalev, N. Perov, V. Ryl'kov, Specific features of the Hall effect in Cr/Co bilayer films, *Physics of the Solid State* **46**, no.8, 1482 (2004).
94. N. S. Perov, A. S. Antonov, N. A. Buznikov, **A. B. Granovsky**, I. T. Iakubov, M. A. Kartashov and A. A. Rakhmanov, Magnetization reversal of Co-based amorphous wires induced by longitudinal AC magnetic field, *J.Magn.Magn.Mat.* **272-276**, Part 3 1868 (2004).

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