

Published papers:

2012

1. Dorogin, Leonid; Polyakov, Boris; Petruhins, Andrejs; Vlassov, Sergei; Lõhmus, Rünno; Kink, Ilmar; Romanov, Alexey (2012). Modeling of kinetic and static friction between an elastically bent nanowire and a flat surface. *Journal of Materials Research*, 27, 580-585.
2. Correc, G.; Barabanova, A.; Tuvikene, R.; Truus, K.; Yermak, I.; Helbert, W. (2012). Comparison of the hybrid κ/β -carrageenan extracted from *Furcellaria lumbricalis* and *Tichocarpus crinitus*. *Carbohydrate Polymers*, 88, 31-36.
3. Hizhnyakov, V. (2012). Zero-phonon lines of systems with different dimensions and unconventional vibronic interactions. *Journal of Physics (accepted): Condensed Matter*, 24(10), 104011.
4. Hizhnyakov, V.; Pae, K.; Vaikjärv, T. (2012). Optical Jahn-Teller effect in the case of local modes and phonons. *Chemical Physics Letters* 525–526, 64 - 68.
5. Romanov, Alexey; Vikarchuk, Anatoly; Kolesnikova, Anna; Dorogin, Leonid; Kink, Ilmar; Aifantis, Elias (2012). Structural transformations in nano- and microobjects triggered by disclinations. *Journal of Materials Research*, 27, 545 - 551.
6. Rubin, P.; Sherman, A.; Schreiber, M. (2012). Magnetic phase diagram of the spin-1 two-dimensional J1-J3 Heisenberg model on a triangular lattice, *Physics Letters A*, 376(10-11), 1062 - 1066.

2011

7. Avila, P.; Rekker, A. (2011). Analysis of the Stochastic Super-Exponential Growth Model. M. D. Todorov, C. I. Christov (Toim.). *Application of Mathematics in Technical and Natural Sciences (Book Series: AIP Conference Proceedings, Volume 1404)* (273 - 283). Amer Inst Physics.
8. Avram, N.M.; Brik, M.G.; Sildos, I. (2011). Electronic and optical properties of ZnCr₂Se₄ as explored by first principles and crystal field calculations. *Physica Status Solidi C* 8, 2585 - 2588.
9. Boltrushko, V.; Hizhnyakov, V.; Pae, K.; Vaikjärv, T. (2011). Zero-phonon lines: Novel manifestations of vibronic interactions in impurity centres of solids. *Optika i Spektroskopiya*, 111, 398 - 406.
10. Brik M.G. (2011). First-principles calculations of structural, electronic, optical and elastic properties of magnesite MgCO₃ and calcite CaCO₃. *Physica B* 406, 1004 - 1012.
11. Brik, M.G. (2011). Comparative first-principles calculations of electronic, optical and elastic anisotropy properties of CsXBr₃ (X=Ca, Ge, Sn) crystals. *Solid State Communications* 151, 1733 - 1738.
12. Brik, M.G. Avram, C.N. (2011). Exchange charge model and analysis of the microscopic crystal field effects in KAl(MoO₄)₂:Cr³⁺. *Journal of Luminescence* 131, 2642 - 2645.
13. Brik, M.G. Electronic, optical and elastic properties of CuXS₂ (X=Al, Ga, In) and AgGaS₂ semiconductors from first-principles calculations. *Physica Status Solidi C* 8 (2011) 2582 - 2584.

14. Brik, M.G.; Kityk, I.V. (2011). Ab initio analysis of the optical, electronic, and elastic properties of the hydrogen-storage single crystals LiNH₂. *Materials Chemistry and Physics* 130, 685 - 689.
15. Brik, M.G.; Avram, N.M. (2011). Electron-vibrational interaction in the 5d states of Ce³⁺ ions in halosulphate phosphors. *Materials Chemistry and Physics* 128, 326 - 330.
16. Brik, M.G.; Avram, N.M.; Ma, C.-G. (2011). First-principles calculations of structural, electronic, optical, elastic properties and microscopic crystal field effects in Rb₂CrF₆. *Computational Materials Science* 50, 2482 - 2487.
17. Brik, M.G.; Kityk, I.V. (2011). Modeling of lattice constant and their relations with ionic radii and electronegativity of constituting ions of A₂XY₆ cubic crystals (A=K, Cs, Rb, Tl; X=tetravalent cation, Y=F, Cl, Br, I). *Journal of Physics and Chemistry of Solids* 72, 1256 - 1260.
18. Brik, M.G.; Kityk, I.V.; Ozga, K.; Slezak A. (2011). Structural, electronic and optical properties of pure and Ni²⁺-doped CdI₂ layered crystals as explored by ab initio and crystal field calculations. *Physica B* 406, 192 - 199.
19. Brik, M.G.; Pan, Y.X.; Liu, G.K. (2011). Spectroscopic and crystal field analysis of absorption and photoluminescence properties of red phosphor CaAl₁₂O₁₉:Mn⁴⁺ modified by MgO. *Journal of Alloys and Compounds* 509, 1452 - 1456.
20. Brik, M.G.; Sildos, I.; Kiisk, V. (2011). Calculations of physical properties of pure and doped crystals: Ab initio and semi-empirical methods in application to YAlO₃:Ce³⁺ and TiO₂. *Journal of Luminescence* 131, 396 - 403.
21. Brik, M.G.; Srivastava, A.M.; Avram, N.M. (2011). Comparative analysis of crystal field effects and energy level scheme of six-fold coordinated Cr⁴⁺ in the pyrochlores, Y₂B₂O₇ (B=Ti⁴⁺, Sn⁴⁺). *Journal of Luminescence* 131, 54 - 58.
22. Brik, M.G.; Srivastava, A.M.; Avram, N.M. (2011). Comparative analysis of crystal field effects and optical spectroscopy of six-coordinated Mn⁴⁺ ion in the Y₂Ti₂O₇ and Y₂Sn₂O₇ pyrochlores. *Optical Materials* 33, 1671 - 1676.
23. Danilson, M.; Altosaar, M.; Kauk, M.; Katerski, A.; Krustok, J.; Raudoja, J. (2011). XPS study of CZTSSe monograin powders. *Thin Solid Films*, 519(21), 7407 - 7411.
24. Dolgov, L.; Kiisk, V.; Reedo, V.; Pikker, S.; Sildos, I.; Kikas, J. (2011). Sensitizing of Sm³⁺ fluorescence by silver dopant in the TiO₂ films (article). *Central European Journal of Physics*, 542 - 546.
25. Dolgov, L.; Kravchuk, R.; Rybak, A.; Kiisk, V.; Sildos, I.; Blonskyi, I. (2011). Optical properties of the Ti surface structured by femtosecond laser beam. *Semiconductor Physics: Quantum Electronics & Optoelectronics*, 14, No3, 325 - 329.
26. El-Naggar, A.M.; Alzayed, N.S.; Majchrowski, A.; Jaroszewicz, L.; Brik, M.G.; Kuznik, W.; Kityk, I.V. (2011). Preparation and fluorescence properties of La₂CaB₁₀O₁₉ crystals doped with Pr³⁺ ions. *Journal of Crystal Growth* 334, 122 - 125.
27. Fedorenko, S.G.; Orlovskii, Yu.V.; Samsonova, E.V. (2011). Fluctuation kinetics of the hopping fluorescence quenching in disordered solid solutions. A theoretical model and experimental evidence, *Journal of Luminescence*, 131, 2409 - 2413.
28. Fedoseyev, V.G. (2011). The mechanisms of the specific effects accompanying the reflection and transmission of a light beam carrying the orbital angular momentum. *Journal of Optics A: Pure and Applied Optics*, 13(6), 064025 - 9pp.
29. Ganchev, M.; Iljina, J.; Kaupmees, L.; Raadik, T.; Volobujeva, O.; Mere, A.; Altosaar, M.; Raudoja, J.; Mellikov, E. (2011). Phase composition of selenized Cu₂ZnSnSe₄ thin films determined by X-ray diffraction and Raman spectroscopy. *Thin Solid Films*, 519(21), 7394 - 7398.
30. Gornischeff, A.; Rinken, T. (2011). Calculating the output signal parameters of lactose biosensing system from transient phase response. *Proceedings of the Estonian Academy of Sciences*, 60(2), 136 - 140.
31. Groote, S.; Körner, J.G.; Melic, B.; Prelovsek, S. (2011). A survey of top quark polarization at a polarized linear e⁺e⁻ collider. *Physical Review D*, 83, 054018
32. Groote, Stefan; Liivat, Hannes; Ots, Ilmar (2011). Symmetries and similarities for spin orientation parameters in e⁺e⁻ → ZH, Zγ, ZZ at SM thresholds. *Nuclear Physics B*, 843(1), 213 - 222.
33. Haas, M.; Hizhnyakov, V.; Shelkan, A.; Klopov, M.; Sievers, A.J. (2011). Prediction of high-frequency intrinsic localized modes in Ni and Nb. *Physical Review B*, 84(144303), 144303-1 - 144303-8.

34. Hizhnyakov, V.; Boltrushko, V.; Pae, K.; Vaikjarv, T. (2011). Zero-phonon lines: Novel manifestations of vibronic interactions in impurity centres of solids. *Optika i Spektroskopiya*, 111(3), 398 - 406.
35. Hizhnyakov, V.; Kikas, J.; Lushchik, A. (2011). Solid state physics. Engelbrecht, J; Varlamova, G. (Toim.). *Research in Estonia. Present and future.* (60 - 77). Tallinn: Estonian Academy of Sciences.
36. Hizhnyakov, V.; Pae, K.; Vaikjärv, T. (2011). Vibronic Transitions to a State with Jahn-Teller Effect: Contribution of Phonons. M. Atanasov et al. (Toim.). *Vibronic Interactions and the Jahn-Teller Effect: Theory and Applications* (179 - 191). Springer.
37. Hussainov, M.; Tätte, T.; Paalo, M.; Gorauskis, J.; Mändar, H.; Lõhmus, A. (2011). Structure and Rheological Behavior of Alkoxide-Based Precursors for Drawing of Metal Oxide Micro- and Nanofibres. *Advanced Materials Research*, 214, 354 - 358.
38. Hödemann, Siim; Kikas, Jaak; Aben, Hillar; Anton, Johan; Errapart, Andrei (2011). Effects of ray bending in scattered light photoelasticity for tempered and annealed glass plates. In: *Advances in Experimental Mechanics VIII : Selected, peer-reviewed papers of the 8th International Conference on Advances in Experimental Mechanics: Integrating Simulation and Experimentation for Validation*, (BSSM 2011), Sept. 7-9 2011, Edinburgh, Scotland: (Toim.) Burguete, R. L.; Lucas, M.; Patterson, E. A.; Quinn, S.. Durnten-Zuerich: Trans Tech Publications Ltd, 2011, (Applied Mechanics and Materials; 70), 440 - 445.
39. Järv, Laur; Kuusk, Piret; Saal, Margus (2011). Scalar-tensor cosmologies with a potential in the general relativity limit. *Journal of Physics: Conference Series*, 283(1), 012017-1 - 012017-9.
40. Kaminska, A.; Buczko, R.; Paszkowicz, W.; Przyblinska, H; Werner-Malento, E.; Suchocki, A.; Brik, M.; Durygin, A.; Drozd, V.; Saxena, S.. Merging of the 4F_{3/2} level states of Nd³⁺ ions in the photoluminescence spectra of gadolinium-gallium garnets under high pressure. *Physical Review B* 84 (2011) 075483.
41. Kasprowicz, D.; Brik, M.G.; Majchrowski, A.; Michalski, E., Gluchowski, P. Up-conversion emission in triply-doped Ho³⁺/Yb³⁺/Tm³⁺ KGd(WO₄)₂ single crystals. *Optics Communications* 284 (2011) 2895 - 2899.
42. Kasprowicz, D.; Brik, M.G.; Majchrowski, A.; Michalski, E.; Gluchowski, P. Up-conversion emission in KGd(WO₄)₂ single crystals triply doped with Er³⁺/Yb³⁺, Tm³⁺, Tb³⁺/Yb³⁺/Tm³⁺ and Pr³⁺/Yb³⁺/Tm³⁺ ions. *Optical Materials* 33 (2011) 1595 - 1601.
43. Kibena, E.; Mäeorg, U.; Matisen, L.; Tammeveski, K. (2011). Electrochemical behaviour of ABTS on aryl-modified glassy carbon electrodes. *Journal of Electroanalytical Chemistry*, 661, 343 - 350.
44. Kiisk, V.; Kangur, T.; Paalo, M.; Tätte, T.; Pikker, S.; Sildos, I. (2011). Optical characterization of sol-gel-derived SnO₂:Eu nanopowders annealed at high temperatures. *physica status solidi (c)*, 8(9), 2641 - 2644.
45. Kiisk, Valter; Kangur, Triin; Paalo, Madis; Tätte, Tanel; Lange, Sven; Pikker, Siim; Sildos, Ilmo (2011). Structural and luminescence characteristics of SnO₂:Eu and SnO₂:Eu,Sb nanophosphors upon annealing at high temperatures. *Materials Chemistry and Physics*, 130(1-2), 293 - 298.
46. Kivinukk, A.; Metsmägi, T. (2011). Approximation in variation by Kantorovich operators. *Proceedings of Estonian Academy of Sciences*, 60(4), 201 - 209.
47. Kivinukk, A.; Metsmägi, T. (2011). Approximation in Variation by Meyer-König and Zeller operators. *Proceedings of Estonian Academy of Sciences*, 60(2), 88 - 97.
48. Kivirand, K.; Rebane, R.; Rincken, T. (2011). A Simple Cadaverine Biosensor of Immobilized Amine Oxidase - Containing Thread and Oxygen Sensor. *Sensor Letters*, 9(5), 1794 - 1800.
49. Kivirand, K.; Rincken, T. (2011). Biosensors for Biogenic Amines: the Present State of Art. *Analytical Letters*, 44(17), 2821 - 2833.
50. Kodu, M.; Aints, M.; Avarmaa, T.; Denks, V.; Feldbach, E.; Jaaniso, R.; Kirm, M.; Maaros, A.; Raud, J. (2011). Hydrogen doping of MgO thin films prepared by pulsed laser deposition. *Applied Surface Science*, 257, 5328 - 5331.

51. Konsin, P.; Sorkin, B. (2011). Magnetic and vibronic theory of the influence of ferroelectricity on magnetic properties of Bi-based multiferroics. *Ferroelectrics*, 418(1), 100 - 105.
52. Kristoffel, N.; Rubin, P. (2011). Interband nodal-region pairing and antinodal pseudogap in hole doped cuprates. J. Bonca, S. Kruchinin (Toim.). *Physical Properties of Nanosystems* (141 - 152). Dordrecht: Springer-Verlag.
53. Kristoffel, N.; Rågo, K. (2011). On the interband pairing in doped graphane. *Physics Letters A*, 375(23), 2246 - 2248.
54. Kristoffel, N.; Veende, K. (2011). Interband superconductivity in spin-polarized subbands. *Physica C-Superconductivity and its Applications*, 471(5-6), 188 - 192.
55. Kropman, D.; Mellikov, E.; Kärner, T.; Heinmaa, I.; Laas, T.; Londos, C.A.; Misiuk, A. (2011). Interaction of point defects with impurities in the Si-SiO₂ system and its influence on the interface properties. *Solid State Phenomena*, 178-179, 263 - 266.
56. Kropman, D.; Mellikov, E.; Kärner, T.; Laas, T.; Medvid, A.; Onufrijevs, P.; Dauksta, E. (2011). Stress relaxation mechanism by strain in the Si-SiO₂ system and its influence on the interface properties. *Solid State Phenomena*, 178-179, 259 - 262.
57. Kropman, Daniel; Karner, Tiit; Dolgov, Sergei; Heinmaa, Ivo; Laas, Tonu; Londos, Charalampos (2011). Interaction of point defects with impurities in the Si-SiO₂ system and its influence on the interface properties. *Physica Status Solidi C: Conferences and Critical Reviews*, 8(3), 694 - 696.
58. Kruusamäe, K.; Brunetto, P.; Punning, A.; Kodu, M.; Jaaniso, R.; Graziani, S.; Fortuna, L.; Aabloo, A. (2011). Electromechanical model for a self-sensing ionic polymer - metal composite actuating device with patterned surface electrodes. *Smart materials and structures*, 20(12), 124001.
59. Kärber, E.; Raadik, T.; Dedova, T.; Krustok, J.; Mere, A.; Mikli, V.; Krunks, M. (2011). Photoluminescence of spray pyrolysis deposited ZnO nanorods, *Nanoscale Research Letters*, 6, 359, 1-7.
60. Kärber, E.; Katerski, A.; Oja Acik, I.; Mikli, V.; Mere, A.; Krunks, M. (2011). Effect of H₂S treatment on properties of CuInS₂ thin films deposited by chemical spray pyrolysis at low temperature. *Thin Solid Films*, 519(21), 7180 - 7183.
61. Laas, K.; Mankin, R. (2011). Resonant Behavior of a Fractional Oscillator with Random Damping. M.D. Todorov, C.I. Christov (Toim.). *Application of Mathematics in Technical and Natural Sciences (Book Series: AIP Conference Proceedings, Volume 1404)* (131 - 138). Amer Inst Physics.
62. Laas, K.; Mankin, R.; Reiter, E. (2011). Influence of memory time on the resonant behavior of an oscillatory system described by a generalized Langevin equation. *INTERNATIONAL JOURNAL OF MATHEMATICAL MODELS AND METHODS IN APPLIED SCIENCES*, 5(2), 280 - 289.
63. Lakshminarayana, G.; Kapustianyk, V.; Ozga, K.; Rudyk, V.; Kityk, I.V.; Brik, M.G.; Berdowski, J.; Tylczynski, Z. (2011). Size and nonlinear optical effects of ferroic organic nanocomposites. *Applied Physics A* 104 721 - 726.
64. Liflyand, E.; Tikhonov, S.; Zeltser, M. (2011). Extending tests for convergence of number series. *Journal of Mathematical Analysis and Applications*, 377(1), 194 - 206.
65. Ma, C.-G.; Brik, M.; Kiisk, V.; Kangur, T.; Sildos, I. (2011). Spectroscopic and crystal-field analysis of energy levels of Eu³⁺ in SnO₂ in comparison with ZrO₂ and TiO₂. *Journal of Alloys and Compounds*, 509(8), 3441 - 3451.
66. Mankin, R.; Laas, K.; Sauga, A. (2011). Generalized Langevin equation with multiplicative noise: Temporal behavior of the autocorrelation functions. *Physical Review E*, 83(6), 061131-1 - 10.
67. Martma, K.; Habicht, K.-L.; Martinez Ramirez, X.; Tepp, K.; Käämbre, T.; Volobujeva, O.; Shimmo, R. (2011). Polydopamine as an adhesive coating for open tubular capillary electrochromatography. *Electrophoresis*, 32(9), 1054 - 1060.
68. Maticiu, N., Hiie, J., Potlog, T., Valdna, V., Gavrilov, A. (2011). Influence of Annealing in H₂ Atmosphere on the Electrical Properties of Thin Film CdS. *MRS Proceedings 2011*, 1324, mrss11-1324-d14-05 doi:10.1557/opl.2011.963.

69. Matrov, Denis; Vonk, Argo; Herm, Laura; Rinke, Ago; Harro, Jaanus (2011). Activating effects of chronic variable stress in rats with different exploratory activity: association with dopamine d(1) receptor function in nucleus accumbens. *Neuropsychobiology*, 64(2), 110 - 122.
70. Mironova-Ulmane, N.; Kuzmin, A.; Grabis, J.; Sildos, I.; Voronin, V.I.; Berger, I.F.; Kazantsev, V.A. (2011). Structural and Magnetic Properties of Nickel Oxide Nanopowders. *Solid State Phenomena*, 168-169, 341 - 344.
71. Omelkov, S.I.; Brik, M.G.; Kirm, M.; Pustovarov, V.A.; Kiisk, V.; Sildos, I. Lange S., Lobanov, S.I.; Isaenko L.I. A luminescence spectroscopy and theoretical study of 4f-5d transitions of Ce³⁺ ions in SrAlF₅ crystals. *Journal of Physics: Condensed Matter* 23 (2011) 105501.
72. Otto, K.; Bombicz, P.; Madarasz, J.; Oja Acik, I.; Krunks, M.; Pokol, G. (2011). Structure and evolved gas analysis (TG/DTA-MS and TG-FTIR) of mer-trichlorotris(thiourea)-indium(III), a precursor for indium sulfide thin films. *Journal of Thermal Analysis and Calorimetry*, 105(1), 83 - 91.
73. Otto, K.; Katerski, A.; Mere, A.; Volobujeva, O.; Krunks, M. (2011). Spray Pyrolysis Deposition of Indium Sulfide Thin Films. *Thin Solid Films*, 519(10), 3055 - 3060.
74. Otto, K.; Katerski, A.; Volobujeva, O.; Mere, A.; Krunks, M. (2011). Indium sulfide thin films deposited by chemical spray of aqueous and alcoholic solutions. *Energy Procedia*, 3, 63 - 69.
75. Otto, K.; Oja Acik, I.; Tõnsuaadu, K.; Mere, A.; Krunks, M. (2011). Thermoanalytical study of precursors for In₂S₃ thin films deposited by spray pyrolysis. *Journal of Thermal Analysis and Calorimetry*, 105(2), 615 - 623.
76. Paalo, M.; Tätte, T.; Shulga, E.; Lobjakas, M.; Floren, A.; Lõhmus, A.; Mäeorg, U.; Kink, I. (2011). Preparation and Characterization of Transparent Electrodes Based on CNT-s Doped Metal Oxides. *Advanced Materials Research*, 324, 133 - 136.
77. Parkel, S; Tõntson, L; Rinke, A. (2011). Millimolar Mn²⁺ influences agonist binding to 5-HT_{1A} receptors by inhibiting guanosine nucleotide binding to receptor-coupled G-proteins. *Neurotoxicology*, 32(1), 25 - 30.
78. Pishtshev, A. (2011). Contribution of long-wavelength transverse optical phonons to electron-phonon coupling in doped polar insulators. *Physica B: Condensed Matter*, 406, 2999 - 3002.
79. Pishtshev, A. (2011). Electron - TO-phonon interaction in polar crystals. *Physica B: Condensed Matter*, 406(8), 1586 - 1591.
80. Plaado, M.; Mononen, R. M.; Lõhmus, R.; Kink, I.; Saal, K. (2011). Formation of thick dielectrophoretic carbon nanotube fibers. *Nanotechnology*, 22(30), 305711.
81. Plucinski, K.J.; Brik, M.G. (2011). Photoinduced features of Y₃Fe₅O₁₂ nanocrystalline films. *Physica E* 44, 435 - 439.
82. Polyakov, Boris; Dorogin, Leonid; Vlassov, Sergei; Kink, Ilmar; Lõhmus, Ants; Romanov, Alexey; Lõhmus, Rünno (2011). Real-time measurements of sliding friction and elastic properties of ZnO nanowires inside a scanning electron microscope. *Solid State Communications*, 151(18), 1244 - 1247.
83. Priimets, J.; Ugaste, Ü. (2011). Diffusion paths in the ternary system Fe-Co-Ni: an empirical approach. *Defect and Diffusion Forum*, 312 - 315, 411 - 416.
84. Põhako, K.; Saal, K.; Bredihhin, A.; Kink, I.; Mäeorg, U. (2011). New method for synthesis of 3-hydrazinopropyl trimethoxysilane. *Proceedings of the Estonian Academy of Sciences. Chemistry*, 60(1), 64 - 68.
85. Pärna, R.; Joost, U.; Nõmmiste, E.; Käämbre, T.; Kikas, A.; Kuusik, I.; Hirsimäki, M.; Kink, I.; and Kisand, V. (2011). Effect of cobalt doping and annealing on properties of titania thin films prepared by sol - gel process. *Applied Surface Science*, 257(15), 6897 - 6907.
86. Reinart, R.; Gyulai, Z.; Berényi, S.; Antus, S.; Vonk, A.; Rinke, A.; Sipos, A. (2011). New 2-thioether-substituted apomorphines as potent and selective dopamine D₂ receptor agonists. *European Journal of Medicinal Chemistry*, 46(7), 2992 - 2999.

87. Rinke, T.; Rinke, P.; Kivirand, K. (2011). Signal Analysis and Calibration of Biosensors for Biogenic Amines in the Mixtures of Several Substrates. *Biosensors - Emerging Materials and Applications* (1 - 16). InTech - Open Access Publisher
88. Saal, K.; Tätt, T.; Järvekülg, M.; Reedo, V.; Lõhmus, A.; Kink, I. (2011). Micro- and nanoscale structures by sol-gel processing. *International Journal of Materials and Product Technology*, 40(1/2), 2 - 14.
89. Saal, Margus; Järv, Laur; Kuusk, Piret (2011). Time evolution of potential dominated scalar-tensor cosmologies in the general relativity limit. In: *Proceedings of the twentieth workshop on general relativity and gravitation in Japan: The 20th workshop on General Relativity and Gravitation in Japan, Kyoto, Japan, 21-25 September, 2011.* (Toim.) Hiramatsu, Takashi; Sasaki, Misao; Shibata, Masaru, Shiromizu, Tetsuya. 2011, 323 - 327.
90. Saal, Margus; Järv, Laur; Kuusk, Piret (2011). Time evolution of scalar-tensor cosmologies in the general relativity limit. *International Journal of Modern Physics: Conference Series* (238 - 245). World Scientific.
91. Saar, Rein; Groote, Stefan; Liivat, Hannes; Ots, Ilmar (2011). Dynamical interactions and gauge invariance. *Physical Review D*, 84(6), 065022 (12p).
92. Saar, Rein; Groote, Stefan; Liivat, Hannes; Ots, Ilmar (2011). Gauge and Lorentz transformation placed on the same foundation. *Advances in Mathematical Physics*, Volume 2011, ID: 652126 (12 lk).
93. Sauga, A.; Martila, D.; Mankin, R. (2011). Energy transfer in ratchets driven by additive trichotomous noise. Michail D. Todorov, Christo I. Christov (Toim.). *Application of mathematics in technical and natural sciences: 3rd International Conference—AMiTaNS'11* (139 - 146). Amer Inst Physics
94. Shulga, E.; Pohako, K.; Treshchalov, A.; Joost, U.; Kisand, V.; Kink, I. (2011). Functionalisation of aligned carbon nanotubes with nitric acid vapour. *Micro & Nano Letters*, 6(8), 704 - 708.
95. Soika, E.; Mankin, R.; Priimets, J. (2011). Response of a generalized Langevin system to a multiplicative trichotomous noise. Alexander Zemliak, Nikos Mastorakis (Toim.). *Recent Advances in Fluid Mechanics, Heat & Mass Transfer and Biology* (87 - 93). Puerto Morelos: WSEAS
96. Srikumar, T.; Brik, M.G.; Srinivasa Rao, Ch.; Venkatramaiah, N.; Gandhi, Y.; Veeraiah, N. Emission features of Ho³⁺ ion in Nb₂O₅, Ta₂O₅ and La₂O₃ mixed Li₂O - ZrO₂ - SiO₂ glasses. *Physica B* 406 (2011) 3592 - 3598.
97. Tätt, T.; Hussainov, M.; Paalo, M.; Part, M.; Talviste, R.; Kiisk, V.; Mandar, H.; Pohako, K.; Pehk, T.; Reivelt, K.; Natali, M.; Gurauskis, J.; Lõhmus, A.; Maeorg, U. (2011). Alkoxide-based precursors for direct drawing of metal oxide micro- and nanofibres. *Science and Technology of Advanced Materials*, 12(3), 1 - 12.
98. Tehver, I.; Benedek, G.; Boltrushko, V.; Hizhnyakov, V.; Vaikjärv, T. (2011). Raman Scattering for Weakened Bonds in the Intermediate States of Impurity Centres. eds. M. Atanasov et al. (Toim.). *Vibronic Interactions and the Jahn-Teller Effect: Theory and Applications* (163 - 177). Springer.
99. Tehver, I.; Kaasik, H.; Hizhnyakov, V. (2011). Excitation profiles of resonant coherent Raman scattering by impurity molecules. *Journal of Raman Spectroscopy*, 42, 1958 - 1962.
100. Tkaczyk, Eric R.; Muring, Tiina; Pajusalu, Mihkel; Anijalg, Agu; Tkaczyk, Alan H.; Teesalu, Pait; Kikas, Jaak; Muring, Koit (2011). Cataract diagnosis by measurement of backscattered light, *Optics Letters*, Vol. 36, Issue 23, pp. 4707 - 4709.
101. Vargunin, A.; Örd, T.; Rägo, K. (2011). Thermal fluctuations of order parameters in two-gap superconductors. *Journal of Superconductivity and Novel Magnetism.*, 24(3), 1127 - 1131.
102. Wen, Hongli; Duan, Chang-Kui; Jia, Guohua; Tanner, Peter A.; Brik, M.G. (2011). Glass composition and excitation wavelength dependence of the luminescence of Eu³⁺ doped lead borate glass. *Journal of Applied Physics* 110, 033536.
103. Vlassov, Sergei; Polyakov, Boris; Dorogin, Leonid; Lõhmus, Ants; Romanov, Alexey; Kink, Ilmar; Gnecco, Enrico; Lõhmus, Rünno (2011). Real-time manipulation of gold nanoparticles inside a scanning electron microscope. *Solid State Communications*, 151(9), 688 - 692.
104. Örd, T.; Rägo, K.; Vargunin, A. (2011). Critical and non-critical channel in the damping of superconducting fluctuations in two-band systems. Bonca, J.; Kruchinin, S. (Toim.). *Physical Properties of Nanosystems* (177 - 186). Dordrecht: Springer.

Doctoral dissertations

- 1.S. Vlassov. Investigation of nanoscale interactions and mechanical properties of nanostructures using quartz tuning fork based real-time measurements. Supervisor R. Lõhmus. Tartu, June 2011.
- 2.M. Järvekülg. Tubular microstructures by Hf-, Zr- and Ti butoxide gel sheet rolling. Supervisor A. Lõhmus. Tartu, June 2011.
- 3.A. Šeletski. Comparison of Summability Methods by Summability Fields, Speeds of Convergence and Statistical Convergence in a Riesz-Type Family. Tallinn, Tallinn University 2011.
- 4.N. Voropajeva. Elementary excitations near the boundary of a strongly correlated crystal (Elementaarergastused tugevalt korreleeritud kristalli pinna lähedal). Supervisor Aleksei Šerman. University of Tartu, Institute of Physics, 2011.
- 5.A. Katerski. Chemical Composition of Sprayed Copper Indium Disulfide Films for Nanostructured Solar Cells (Pihustatud vaskindiumsulfiid kilede keemiline koostis ja rakendus nanostruktuursetes päikesepatareides). Supervisor Malle Krunks. Tallinn University of Technology, 2011.

Papers accepted for publication:

- 1.Dedova, T.; Oja Acik, I.; Krunks, M.; Mikli, V.; Volobujeva, O.; Mere, A. (2012). Effect of substrate morphology on the nucleation and growth of ZnO nanorods prepared by spray pyrolysis. *Thin Solid Films*.
- 2.Dorogin, L. M.; Polyakov, B; Vlassov, S.; Antsov, M.; Lõhmus, R.; Kink I., Romanov, A. E. Real-time manipulation of ZnO nanowires on a flat surface employed for tribological measurements: experimental methods and modeling; for submission to *Physica Status Solidi A*.
- 3.Litak, G.; Örd, T.; Rägo, K.; Vargunin, A. Coherence lengths for superconductivity in the two-orbital negative-U Hubbard model, *Acta Physica Polonica A* (accepted).
- 4.Mazina O., Reinart R., Kopanchuk S. and Rincken A. (2011) BacMam system for FRET based cAMP sensor expression in studies of melanocortin MC1 receptor activation *J. Biomol. Screening* (submitted).
- 5.Palm, V.; Rahn, M.; Hizhnyakov, V. Modal dispersion due to photon-plasmon coupling in a SNOM tip, *Opt. Comm*.
- 6.Pishtshev, A.; Klopov, M. Assessing structural bonding aspects of multiband superconductors through impurity-induced local lattice distortions: a case study on MgB₂, *Int. J. Quantum Chem.* (accepted).
- 7.Polyakov, B.; Dorogin, L. M.; Vlassov, S.; Romanov, A. E.; Lõhmus, R. Simultaneous measurement of static and kinetic friction of ZnO nanowires in situ a Scanning Electron Microscope; *Micron* (2012). ACCEPTED
- 8.Polyakov, B.; Dorogin, L. M.; Lõhmus, A.; Romanov, A. E., Lõhmus, R. In situ measurement of the kinetic friction of ZnO nanowires inside a scanning electron microscope; *Applied Surface Science* (2011), in press.
- 9.Polyakov, Boris; Vlassov, Sergei; Dorogin, Leonid M.; Kulis, Peteris; Kink, Ilmar; Gnecco, Enrico; Lohmus, Rynno. Effect of substrate roughness on CuO nanowire static friction, submitted to *Surface Science*
- 10.Reinart R., Ausmees K., Kriis K., Rincken A. and Kanger T. (2011) Chemoenzymatic synthesis and evaluation of 3-azabicyclo[3.2.0]heptane derivatives as modulators of dopamine receptors. *Eur. J. Med. Chem.* (submitted).
- 11.Sherman, A. (2012). Magnetic incommensurability in p-type cuprate perovskites, *Int. J. Modern Phys. B*, 26p.
- 12.Sherman, A.; Schreiber, M. Magnetic susceptibility in the pseudogap phase of cuprate perovskites, submitted to *Eur. Phys. J B*.

13. Tamm, A.; Dimri, M.C.; Kozlova, J.; Aidla, A.; Tätte, T.; Arroval, T.; Mäeorg, U.; Mändar, H.; Stern, R.; Kukli, K. (2011). Atomic layer deposition of ferromagnetic iron oxide films on three-dimensional substrates with tin oxide nanoparticles. *Journal of Crystal Growth*, (in press).
14. Vent, M.; Kärber, E.; Unt, T.; Mere, A.; Krunks, M. (2011). The effect of growth temperature and spraying rate on properties of ZnO:In films. *physica status solidi (c)*.
15. Vlassov, S.; Scheler, O.; Plaado, M.; Löhmus, R.; Kurg, A.; Saal, K.; Kink, I. (2012) Integrated carbon nanotube fibre-quartz tuning fork biosensor. *Proc. Est. Acad. Sci.* 61.
16. Örd, T.; Rägo, K.; Vargunin, A. Critical and non-critical coherence lengths in a two-band superconductor, *J. Supercond Novel Magn.*

Conference posters and presentations:

2012

1. Rubin, P.; Sherman, A.; Schreiber, M. (2012). Magnetic phase diagram of the spin-1 two-dimensional J1-J3 Heisenberg model on a triangular lattice, "504. WE-Heraeus-Seminar on Quantum Magnetism in Low Spatial Dimensions", (Bad Honnef, Germany, April 16-18).

2011

2. Sherman, A.; Schreiber, M. (2012). Mechanisms of the magnetic incommensurability in p-type cuprate perovskites, "III International Conference on Superconductivity and Magnetism", (Istanbul, Turkey, April 29-May 4).
3. Dolgov, L.; Kiisk, V.; Sildos, I. (2011). Plasmon-Coupled Emission from the TiO₂:Sm³⁺ Sol-Gel Film. International conference Functional materials and nanotechnologies 2011. (Toim.) Sternberg, A.; Muzikante, I.; Grinberga, L. 2011, 52.
4. Haas, M.; Hizhnyakov, V.; Klopov, M.; Shelkan, A. (2011). Creation of defects and self-localized vibrations in crystals: Effects of long-range forces in nonlinear dynamics. "Functional materials and nanotechnologies" 2011, (Riga, Latvia, April 5-8).
5. Hizhnyakov, V. (2011). Optical spectra of quantum liquids ³He and ⁴He doped by small molecules. In: Materials of XVII All-Russian conference. Optics and spectroscopy of condensed matter.: Optics and spectroscopy of condensed matter. Russia, Krasnodar, September 18-24, 2011. (Toim.) Isaev, V. A. Krasnodar, Russia: ФГБОУ ВПО "Кубанский государственный университет", 2011, 219.
6. Hizhnyakov, V.; Haas, M.; Klopov, M.; Shelkan, A. (2011). Creation of defects in solids: Effect of long-range forces. "Advances in applied physics and materials science congress", (Antalya, Turkey, May 12-15).
7. Hizhnyakov, V.; Haas, M.; Klopov, M.; Shelkan, A. (2011). High frequency intrinsic localized modes in solids: an example of metallic Ni, 3rd Bilateral Estonian-German Workshop "Strong Nonlinear Vibronic and Electronic Interactions in Solids", (Cottbus, Germany, June 13-15).
8. Junolainen, A.; Oja Acik, I.; Mikli, V.; Krunks, M. (2011). Effect of titanium(IV)isopropoxide and acetylacetone molar ratio in the solution on spray deposited TiO₂ films. In: E-MRS 2011 Spring Meeting, Program and Book of Abstracts, Symp. D: EMRS Spring Meeting, Nice, May 9-13, 2011. (Toim.) European Materials Research Society. EMRS, 2011, 18.
9. Kaasik, H.; Hizhnyakov, V. (2011). Eiconal resonance in quantum emission of a medium under high power laser excitation. In: Strong Nonlinear Vibronic and Electronic Interactions in Solids. Book of Abstracts: 3rd Bilateral Estonian-German Workshop "Strong Nonlinear Vibronic and Electronic Interactions in Solids", Cottbus, Germany, June 13-15, 2011. Cottbus, Germany: Institute of Physics, Brandenburg University of Technology, 2011, 52.

10. Kõnsin, P.; Sorkin, B. (2011). Temperature Dependence of the Dielectric Constant in Quantum Paraelectrics. In: Book of Abstracts: Baltic Sea Regional Conference. Functional materials and nanotechnologies. Institute of Solid State Physics, University of Riga, Riga, Latvia, April 5-8, 2011. (Toim.) Sternberg, A.; Muzikante, I.; Grinberga, L. Riga, Latvia: Latgales druka, 2011, 163.
11. Kopanchuk, S.; Mazina, O.; Ojamäe, K.; Reinart, R.; Tõntson, L.; Veiksina, S.; Viil, I.; Rinke, A. (2011). Applying fluorescence for study of GPCR systems. In: Program and Abstract Book: Focus on Microscopy 2011, Konstanz, Germany, 17-20.04.2011, 306.
12. Rebane, I. (2011). "Spontaneous emission rates of a single-impurity molecule in biaxial host crystals" 3rd Bilateral Estonian-German Workshop "Strong Nonlinear Vibronic and Electronic Interactions in Solids", (Cottbus, Germany, June 13-15) // Book of Abstracts, p. 42.
13. Rubin, P.; Sherman, A.; Schreiber, M. (2011). The spin-1 Heisenberg antiferromagnet on a triangular lattice, 3rd Bilateral Estonian-German Workshop "Strong Nonlinear Vibronic and Electronic Interactions in Solids", (Cottbus, Germany, June 13-15) // Book of Abstracts, p. 40.
14. Rahn, M.; Pärs, M.; Palm, V.; Hizhnyakov, V.; Dolgov, L. Mesoscopic spectral modulation of light transmitted by a subwavelength aperture. Proceedings of the NATO Advanced Study Institute on Bio-Photonics: Spectroscopy, Imaging, Sensing, and Manipulation (Erice, Sicily, Italy, 02 - 17 July 2009), Eds. B. Di Bartolo, J. Collins, Springer, Netherlands, 367, (2011).
15. Valdna, V.; Grossberg, M.; Hiie, J.; Kallavus, U.; Mikli, V.; Raadik, T.; Traksmäa, R.; Viljus, M. (2011). ZnCdSeTe Semiconductor Compounds: Preparation and Properties. In: Symposium U - Nuclear Radiation Detection Materials : MRS 2011 Spring Meeting, San Francisco, CA, April 25-29, 2011. (Toim.) Michael Fiederle. Cambridge University Press, 2011, (MRS Proceedings; 1341), u07 - 15.
16. Voropajeva, N; Sherman A. (2011). Elementary excitations near the boundary of a strongly correlated crystal, Workshop "Korrelatsioonstage" (oral presentation) (Dresden, Germany, February 28-March 4).
17. Voropajeva, N; Sherman A. (2011). Near-boundary and bulk regions of semi-infinite two- and three-dimensional Heisenberg antiferromagnets, 3rd Bilateral Estonian-German Workshop "Strong Nonlinear Vibronic and Electronic Interactions in Solids" (Cottbus, Germany, June 13-15) // Book of Abstracts, p. 41.
18. Voropajeva, N; Sherman A. (2011). Peculiarities of the hole spectral function near the boundary of a strongly correlated metal, 3rd Bilateral Estonian-German Workshop "Strong Nonlinear Vibronic and Electronic Interactions in Solids" (Cottbus, Germany, June 13-15) // Book of Abstracts, p. 23.