

## GEORGI NADJAKOV INSTITUT OF SOLID STATE PHYSICS

### PAPERS PUBLISHED IN JOURNALS WITH IF

1. H. Chamati and N.I. Papanicolaou, Phonon density of states of iron from molecular dynamics simulations, *J. Optoelectron. Adv. Mater.* **9**, 159-161 (2007).
2. H. Chamati and S. Romano, First-order phase transitions in classical lattice gas spin models, *Phys. Rev. B* **75**, 184413 (2007).
3. M.T. Primatarowa, R.S. Kamburova, and K.T. Stoychev, Interaction of solitons with localized nonlinear defects, *JOAM* **9**, 152-154 (2007).
4. K.T. Stoychev, M.T. Primatarowa, and R.S. Kamburova, Resonant interaction of solitons with extended defects, *JOAM* **9**, 155-158 (2007).
5. K.Koroutchev and E.Korutcheva, Text as statistical mechanics object, ICTP Scientific Report IC/IR/2007/002, p.1-9.
6. D. I. Uzunov, *Europhys. Lett.* **77** (2007) 20008; New magnetic effects on the phase transitions in unconventional superconductors. (See also arXiv.org: cond-mat/0607057.)
7. D. V. Shopova, T. E. Tsvetkov, and D. I. Uzunov, *J. Phys. Studies*, **10** No. 4 (2006), pp. 330-350, "Gauge effects on phase transitions of superconductors" (invited review article for the jubilee issue of the journal). (See also ArXiv.org, cond-mat/0611354.)
8. D. V. Shopova and D. I. Uzunov, in: *Progress in Superconductivity Research*, ed. by Oliver A. Chang (Nova Science Publishers, New York, 2008), pp. 25 -76. ISBN: 1-60021-694-3. Title: "Large Fluctuation and Gauge Effects on the Critical Behavior of Superconductors." [See also ArXiv.org, cond-mat/0701266.]
9. L. Mihailov, R.Pavlov, Ch. Velchev, L. Pavlov, M. Dimitrova-Ivanovich, J. Maruani. Non-Conventional Optimization Procedure for Mass Effects Investigation in the Ground State Energies of 1s Core-Ionized Helium-Like Atoms from Helium to Xenon, *JOAM* **9**, 390-393 (2007).
10. O. Ivanov, Investigating solids, liquids and gases by Surface photo-charge effect (SPCE), *Sensors & Transducers Journal* **76**, 1018 (2007).
11. O. Ivanov, Technologies with possible application in the field of mechanical engineering based on Surface photo charge effect, *Machines, Technologies, Materials* **3**, 162-164 (2007).
12. O. Ivanov, E. Leyarovski, V. Lovchinov, C. Popov, M. Kamenova and M. Georgiev, Photo-induced electrification of solids. III. Temperature dependences, xxx.lanl.gov, Paper ID: cond-mat/ 0706.3877 (2007).
13. A. Peeva, M. Kalitzova. G. Beshkov, G. Zollo, G. Vitali, W.Skorupa-Nanocluster Evolution in Ge<sup>+</sup> Ion Implanted Ta<sub>2</sub>O<sub>5</sub> Layers, *Materials Letters* 61 (2007) 3620 – 3623.
14. R. Kogler, A. Mucklich, W. Scorupa, A. Peeva, A.Yu. Kuznetsov, J.S. Christensen, B.G. Svensson, Excess vacancies in high energy ion implanted SiGe, *Journal of Applied Physics* 101, 033508 (2007)
15. T. Ivanova, K.A. Gesheva, M.Kalitzova, B.Marsen, B.Cole, E.L.Miller, Electrochromic behavior of Mo/W oxides related to their surface morphology and intercalation process parameters, *Materials Science and Engineering B* 142 (2007) 126 – 134.
16. A. Peeva, A. Og. Dikovska, P. A. Atanasov, M. Jiménez de Castro, W. Skorupa, Rare-earth implanted Y<sub>2</sub>O<sub>3</sub> thin films, *Applied Surface Science* 253 (2007 ) 8165-8168
17. E. Pecheva, C. Laungu, T. Petrov, L. Pramatarova, Stimulated in vitro bone-like apatite formation by a novel laser processing technique, invited article for Special issue of *Chemical Engineering J. (Materials Synthesis and Processing section): Porous Inorganic Materials for Biomedical Applications* (2007), doi: 10.1016/j.cej.2007.07.096

18. A. Kondyurin, E. Pecheva, L. Pramatarova, Calcium phosphate formation on plasma immersion ion implanted low density polyethylene and polytetrafluoroethylene surfaces, *J. of Materials Science: Materials in Medicine* (2007), doi 10.1007/s10856-007-3231-2
19. L. Pramatarova, E. Pecheva, P. Montgomery, D. Dimova-Malinovska, T. Petrov, A. L. Toth, M. Dimitrova, Bioactivity of polycrystalline silicon layers, *Journal of Nanoscience and Nanotechnology*, 2007, doi: 10.1166/jnn.2007.D163
20. E. Pecheva, L.Pramatarova, G.Altankov, Hydroxyapatite grown on a native extracellular matrix: initial interactions with human fibroblasts, *Langmuir* 23 (18) (2007) 9386-9392
21. E. Pecheva, P. Montgomery, D. Montaner, L. Pramatarova, White light scanning interferometry adapted for large area optical analysis of thick and rough hydroxyapatite layers, *Langmuir* 23 (7) (2007) 3912-3918
22. L. Pramatarova, E. Pecheva, V. Krastev, F. Riesz, Ion implantation modified stainless steel as a substrate for hydroxyapatite deposition. Part I. Surface modification and characterization, *J. of Materials Science: Materials in Medicine* 18(3) (2007) 435-440
23. L. Pramatarova, E. Pecheva, V. Krastev, Ion implantation modified stainless steel as a substrate for hydroxyapatite deposition. Part II. Biomimetic layer growth and characterization, *J. of Materials Science: Materials in Medicine* 18(3) (2007) 441-447
24. M. Dimitrova, L. Pramatarova, E. Pecheva, P. Laquerriere, P. Montgomery, A. Petrova, G. Altankov, Osteoblast cells activity on calcium phosphate layers grown on glass by a laser-liquid-solid interaction, *J. Optoelectr. Adv. Materials* 9(1) (2007) 240-243
25. F. Riesz, L.D. Pramatarova, E.V. Pecheva, M. Dimitrova, Application of Makyo (magic-mirror) topography in the research of artificial biominerilization, *Journal of Optoelectronics and Advanced Materials* 9(1) (2007) 201-204
26. M. Dimitrova, A. Petrova, E. Pecheva, T. Petrov, P. Montgomery, L. Pramatarova, Mechanical properties of extracellular matrix/hydroxyapatite composites, *Journal of Optoelectronics and Advanced Materials* 9(1) (2007) 229-232
27. L. Pramatarova, E. Pecheva, S. Stavrev, T. Spasov, P. Montgomery, A. Toth, M. Dimitrova, M. Apostolova, Artificial bones through nanodiamonds, *Journal of Optoelectronics and Advanced Materials* 9(1) (2007) 236-239
28. E. Pecheva, L. Pramatarova, A. Szekeres, T. Nikolova, P. Montgomery, Application of porous SiO<sub>x</sub> layer as a template for calcium phosphate growth, *Journal of Optoelectronics and Advanced Materials* 9(1) (2007) 233-235
29. L. Pramatarova, M. Dimitrova, R. Dimitrova, E. Pecheva, T. Spassov, Hydroxyapatite/detonation nanodiamond composites: A novel surface modification to extend implants lifetime, *Functional Materials and Nanotechnologies (FM&NT 2007)* IOP Publishing J. of Physics: Conference Series 93 (2007) 012049 doi:10.1088/1742-6596/93/1/012049
30. N. S. Tonchev, Finite-size scaling in anisotropic systems, *Phys. Rev. E* **75**, 031110 (1-9) (2007).
31. N. S. Tonchev, An introduction to the Casimir effect in critical phenomena *JOAM* **9**, 11-17, (2007).
32. V. Lovchinov, A. Apostolov, D. Dimitrov, I. Radulov, P. Simeonova, K. Kalaydjiev, PH. Vanderbemden, Magnetic And Transport Properties Investigation of Rare-Earth Compounds With Orthorhombic Structure, *JOAM* **9**, 460-463 (2007).
33. Pavlina Simeonova and Vasil Simeonov, Multivariate statistical interpretation of laboratory clinical data, *Ecol. Chem. Eng.* **14**, 159-170 (2007).
34. Vassil Lovchinov, Andrey Apostolov, Dimitar Dimitrov, Pavlina Simeonova and Konstantin Nenkov, "Magnetotransport properties of Sm<sub>0.864</sub>Pb<sub>0.136</sub>MnO<sub>3</sub> single crystal", *JOAM* **9**, 2897-2901 (2007).
35. Pavlina Simeonova, Vasil Lovchinov, V. Simeonov, Multivariate Statistical Assessment of the Ropotamo River Water Quality, *Journal of Balkan Ecology* **10**, 197-204 (2007).

36. Pavlina Simeonova, V. Lovchinov, Dimitar Dimitrov, Ilia Radulov, Quality assessment of the Yantra River water monitoring data, *Ecol. Chem. Eng.* **14**, 693-705 (2007).
37. Pavlina Simeonova, Vasil Lovchinov, Vasil Simeonov, Data Interpretation using Multivariate Statistics for an Aerosol Sample Collection from Northern Greece, *Journal of Balkan Ecology* **3**, 99-306 (2007).
38. S. Terzieva, A. Stoyanova-Ivanova, V. Mikli, A. Zahariev, Ch. Angelov, Y. Dimitriev and V. Kovachev, The influence of the partial Ca substitution on the microstructure of YBCO tapes, *JOAM* **9**, 453 – 456 (2007).
39. P. Simeonova and V. Simeonov, Chemometrics to Evaluate the Quality of Water Sources for Human Consumption, *Microchim. Acta* **156**, 315-320 (2007).
40. E. Vlakhov, B. Blagoev, E. Mateev, L. Neshkov, T. Nurgaliev, L. Lakov, K. Toncheva, Y. Marinov, K. Nenkov, I. Radulov, K. Piotrowski, W. Paszkowicz, A. Szewczyk, M. Baran, R. Szymczak, Magnetron Sputtering Deposition and Characterization of GdMnO<sub>3</sub> Thin Films, *JOAM* **9**, 456 – 459 (2007).
41. N. Balchev, K. Nenkov, B. Kunev, J. Pirov, G. Mihova, G. Fuchs, “Superconductivity, Magnetism and Magnetoresistance in RuSr<sub>2</sub>R<sub>1.4</sub>Ce<sub>0.6</sub>Cu<sub>2</sub>O<sub>10-δ</sub> (R=Eu, Sm)”, *Journal of Superconductivity and Novel Magnetism* **20**, 333 (2007).
42. N. Balchev, K. Nenkov, G. Mihova, B. Kunev and J. Pirov, “Magnetic and Superconducting Properties of Sn doped Ru-1222”, *Physica C* **467**, 174-178 (2007).
43. G. Fuchs, K. Nenkov, G. Krabbes, R. Weinstein, A. Gandini, R. Sawh, B. Mayers, and D. Parks, Strongly enhanced irreversibility fields and Bose-glass behaviour in bulk YBCO with discontinuous columnar irradiation defects, *Supercond. Sci. Technol.* **20**, S197 –S204 (2007).
44. E. Atanassova, A. Paskaleva, Challenges of Ta<sub>2</sub>O<sub>5</sub> as high-*k* dielectric for nanoscale DRAMs, *Microel. Reliab.* **47**, 913-923 (2007) **introductory invited paper**.
45. E. Atanassova, D. Spassov, A. Paskaleva, Metal gates and gate-deposition defects in Ta<sub>2</sub>O<sub>5</sub> stack capacitors, *Microel. Reliab.* **47**, 2088-2093 (2007).
46. E. Atanassova, D. Spassov, A. Paskaleva, Effect of metal gate on the breakdown characteristics and leakage current of Ta<sub>2</sub>O<sub>5</sub> stack capacitors, *J. of Optoelect. and Advanced Mater.* **9** No. 2, 315-318 (2007).
47. A. Paskaleva, D. Spassov, E. Atanassova, Impact of Si substrate nitridation on electrical characteristics of Ta<sub>2</sub>O<sub>5</sub> stacks, *J. Phys. D: Appl. Phys.* **40**, 6709-6717 (2007).
48. N. Novkovski, E. Atanassova, A. Paskaleva, Stress-induced leakage current in rf sputtered Ta<sub>2</sub>O<sub>5</sub>-on N-implanted Si, *Appl. Surf. Sci.* **253**, 4396-4403 (2007).
49. N. Novkovski, E. Atanassova, Frequency dependence of the effective series capacitance of metal-Ta<sub>2</sub>O<sub>5</sub>/SiO<sub>2</sub>-Si structures, *Semicond. Sci. Technol.* **22**, 533-536 (2007).
50. A. Paskaleva, M. Lemberger, A. J. Bauer, Stress induced leakage current mechanism in thin Hf-silicate layers, *Appl. Phys. Lett.* **90** (4), 042105, (3 pp) (2007).
51. M. Lemberger, F. Schön, T. Dirnecker, M. P. M. Jank, L. Frey, H. Ryssel, A. Paskaleva, S. Zurcher, A. J. Bauer, MOCVD of Hf-silicate films obtained from a single-source precursor on Si and Ge for gate-dielectric application, *Chemical Vapor Deposition* **13**, 105-111 (2007).
52. A. Paskaleva, M. Lemberger, A. J. Bauer, Polarity asymmetry of stress and charge trapping behavior of thin Hf- and Zr-silicate layer, *Microel. Reliab.* **47**, 2094-2099 (2007).
53. S.S. Georgiev, Optimal distance between current collecting electrodes of the solar cells Solid-StateElectronics **51** (2007) 376-380
54. N. Nedev, E. Manolov, B. Pantchev, Ts. Ivanov, R. Durny, and V. Nadazdy, Influence of the a-Si:H interfacial region defects on the quasistatic capacitance of Metal/c-Si/SiO<sub>2</sub>/a-Si:H structures, *J. Optoelectronics and Adv. Mat.* **9**, No. 2, pp. 352-354, 2007.

55. N. Nedev, D. Nesheva, E. Manolov, R. Brüggemann, S. Meier, K. Kirilov and Z. Levi, Influence of thermal annealing on the memory effect in MIS structures containing crystalline Si nanoparticles, *J. Optoelect. and Adv. Mat.* **9**, No. 1, pp. 182-185, 2007.
56. I. Iordanova, L. Popova, P. Aleksandrova, G. Beshkov, E. Vlakhov, R. Mirchev, B. Blagoev, "X- ray investigation of annealed CeO<sub>2</sub> film prepared by sputtering on Si substrates", *Thin Solid Films* **515**, 8078 –8081 (2007).
57. P.Dimitrova, S.Andreev, L.Popova, Comparative analysis of the behaviour of AMR position sensors at real-life magnetic field, *JOAM* **9** N2(2007) 319-322
58. I. Bineva, D. Nesheva, M. Šćepanović, M. Grujić-Brojčin, Z. V. Popović, Z. Levi, "Dependence of photoluminescence from a-Si nanoparticles on the annealing time and exciting wavelength", *J. Luminescence* **126**, 7-13 (2007).
59. M. J. Šćepanović, M. Grujić-Brojčin, I. Bineva, D. Nesheva, Z. Aneva, Z. Levi, Z. V. Popović, "Raman study of ZnSe/SiO<sub>x</sub> multilayers", *JOAM* **9**, 178-181 (2007).
60. Z. Aneva, D. Nesheva, C. Main and S. Reynolds, Determination of trap density in CdSe thin films from thermally stimulated conductivity spectra, *J. Optoelectron. Adv. Mater.* **9**, 205-208 (2007).
61. S. Reynolds, Z. Aneva, Z. Levi, D. Nesheva, C. Main and V. Smirnov, "Potential gas sensor applications of semiconductor thin films based on changes in photoresponse", *J. Optoelectron. Adv. Mater.* **9**, 209-212 (2007).
62. C. Main, Z. Aneva, S. Reynolds, N. Souffri, D. Nesheva and R. Bruggemann, "Thermally-stimulated currents in thin-film semiconductors – computer modelling and experiment", *J. Optoelectron. Adv. Mater.* **9**, 114-120 (2007).
63. A. Milutinović, Z. Dohčević-Mitrović, D. Nesheva, M. Šćepanović, M. Grujić-Brojčin, Z. V. Popović, "Infrared and photoluminescence study of rapid thermally annealed SiO<sub>x</sub> thin films", *Mat. Sci. Forum* **555**, 309-314 (2007).
64. I. Bineva, D. Nesheva, Z. Aneva, Z. Levi, "Room temperature photoluminescence from amorphous silicon nanoparticles in SiO<sub>x</sub> thin films", *J. Luminescence* **126**, 497 (2007).
65. D. Nesheva, N. Nedev, E. Manolov and I. Bineva, "Memory effect in MIS structures with amorphous silicon nanoparticles embedded in ultra thin SiO<sub>x</sub> matrix", *J. Phys. Chem. Sol.* **68**, 725-728 (2007).
66. D. Nesheva, A. Petrova, S. Stavrev, Z. Levi, Z. Aneva, "Thin film semiconductor nanomaterials and nanostructures prepared by physical vapour deposition: an atomic force microscopy study", *J. Phys. Chem. Sol.* **68**, 675-680 (2007).
67. Z.G. Ivanova, Z. Aneva, R. Ganesan, D. Tonchev, E.S.R. Gopal, K.S.R.K. Rao, T.W. Allen, R.G. DeCorby, S.O. Kasap, "Low-temperature Er<sup>3+</sup> emission in Ge-S-Ga glasses excited by host absorption", *J. Non-Cryst. Solids*, **353**, 1418-1421 (2007).
68. Z.G. Ivanova, Z. Aneva, K. Koughia, D. Tonchev, S.O. Kasap, "On the optical absorption and photoluminescence of Er-doped Ge-S-Ga glasses", *J. Non-Cryst. Solids*, **353**, 1330-1332 (2007).
69. Z.G. Ivanova, E. Cernoskova, Z. Cernosek, "Er-doped Ge-S-Ga glasses: photoluminescence and thermal properties", *J. Phys. Chem. Solids* **68**, 1260-1262 (2007).
70. D. Tonchev, K. Koughia, Z.G. Ivanova, S.O. Kasap, "Thermal and optical properties of erbium doped (GeS<sub>2</sub>)<sub>75</sub>(Ga<sub>2</sub>S<sub>3</sub>)<sub>25</sub> glasses", *J. Optoelect. Adv. Mater.* **9** (2), 337-340 (2007).
71. Z.G. Ivanova, "Photoluminescence and local structure in GeS<sub>2</sub>-Ga<sub>2</sub>S<sub>3</sub>-Er<sub>2</sub>S<sub>3</sub> glasses", *J. Optoelectron. Adv. Mater.* **9** (10) 3149-3152 (2007).
72. E. Skordeva, V. Pamukchieva, D. Arsova, P.-E. Lippens, M. Womes, J.-C. Jumas, M.-F. Guimon and D. Gonbeau, "Mossbauer and XPS structural study of (Ge,Sn)-As-S glasses", *J. Optoelectron. Adv. Mater.* **9** (8) 2516-2520 (2007).
73. F. Yakuphanoglu, D. Arsova, E. Vateva, "Photoinduced changes of the optical parameters of thin films from Ge<sub>30.8</sub>As<sub>5.7</sub>S<sub>63.5</sub> glass", *JOAM* **9** (1) 334-336 (2007).

74. E. Vateva, B. Terziyska, D. Arsova, "Low-temperature specific heat and thermal conductivity of ternary chalcogenide glasses" (review paper), *J. Optoelectron. Adv. Mater.* **9** (7) 1965 -1973 (2007).
75. D. Arsova, K. Beeva, E. Vateva, V. Pamukchieva, K. Beev, S. Sainov, "Giant photoinduced effects in films from the  $\text{Ge}_2\text{S}_3$ - $\text{AsS}_3$  system", *J. Optoelectron. Adv. Mater.* **9** (10) 3115 – 3118 (2007).
76. E. Vateva, "Giant photo- and thermoinduced effects in chalcogenides" (review paper), *J. Optoelectron. Adv. Mater.* **9** (10) 3108-3114 (2007).
77. S. Alexandrova, A. Szekeres, E. Valcheva, E. Vlaikova, "Electrically active defect centers in MOS structures with nanosized  $\text{SiO}_2$  thermally grown on plasma hydrogenated silicon", *J. Optoelectronics & Advanced Materials* **9**, 398-401 (2007).
78. S. Kaschieva, K. Christova, I. Boradjiev, A. Petrova, J. Koprinarova, S. N. Dmitriev, The role of the high-energy electron irradiation induced defects in some mechanical properties of Si- $\text{SiO}_2$  structures, *JOAM* **9**, 394-397 (2007).
79. P. Danesh, Bl. Pantchev, B. Schmidt, and D. Grambole, "Molecular Hydrogen in Amorphous Silicon with High Internal Stress", *Jpn. J. Appl. Phys.* **46**, No 8A, p. 5050-5052 (2007).
80. S. Simeonov, S. Bakalova, E. Kafedjiiska, A. Szekeres, S. Grigorescu, F. Sima, G. Socol, I. N. Mihailescu, "Al/AlN/Si MIS structures with pulsed-laser-deposited AlN films as gate dielectrics: Electrical properties", *Romanian J. Information Sci.&Technol (ROMJIST)* **10**(3) 251-259 (2007).
81. S. Bakalova, A. Szekeres, A. Cziraki, C.P. Lungu, S. Grigorescu, G. Socol, E. Axente, I. N. Mihailescu, "Influence of *in-situ* Nitrogen Pressure on Crystallization of Pulsed Laser Deposited AlN Films", *Appl. Surf. Sci.* **253**, 8215-8219 (2007).
82. E. Halova, S. Alexandrova, Electrical characterization of MOS structures with 10 nm  $\text{SiO}_2$ , thermally grown on plasma hydrogenated (100)-pSi, *JOAM* **9**, 402-405 (2007)
83. E. Valcheva, D. Manova, S. Mändl, S. Alexandrova, J. Lutz, S. Dimitrov, Ion beam synthesis of AlN nanostructured thin films, *JOAM* **9**, 166-169 (2007)
84. S. Alexandrova, I. A. Maslyanitsyn, V. Pamukchieva and V. D. Shigorin, Thickness homogeneity of  $\text{Ge}_x\text{Sb}_{40-x}\text{S}_60$  chalcogenide thin films, *JOAM* **9**, 330-333 (2007)
85. S. Tinchev, Y. Dyulgarska, P. Nikolova, S. Alexandrova, E. Valcheva, Electrical properties of  $a\text{-C:H}/\text{Si}$  and  $(a\text{-C:H})/\text{Ti}$  heterostructures, *JOAM* **9**, 386-389 (2007)
86. K. Gesheva, A. Cziraki, T. Ivanova, A. Szekeres, "Crystallization of APCVD-Grown Molybdenum and Mixed Tungsten/Molybdenum Oxide Films for Electrochromic Application", *Thin Solid Films* **515**, 4609-4613 (2007).
87. E. Vlaikova, A. Szekeres, S. Georgiev, G. Beshkov, "Optical Properties Of PECVD Carbon Films On Silicon Subjected To Rapid Thermal Annealing", *J. Optoelectron. Adv. Mater.* **9**, 379-381 (2007)
88. S. Bakalova, S. Simeonov, E. Kafedjiiska, A. Szekeres, G. Socol, I. N. Mihailescu, "Admittance study of MIS structures with pulsed plasma deposited AlN films", *J. Optoelectron. Adv. Mater.* **9**, 323-325 (2007).
89. G. Socol, E. Axente, C. Ristoscu, F. Sima, A. Popescu, N. Stefan, I. N. Mihailescu, L. Escoubas, J. Ferreira, S. Bakalova, A. Szekeres, Enhanced gas sensing of Au nanocluster doped or coated zinc oxide thin films, *J. Appl. Phys.* **102**, 083103, 6 p. (2007).
90. N. Peev, "Particle collision in amorphous medium at equilibrium", *Journal of Research in Physics* **31**, 69 – 78 (2007).
91. I. D. Avramov, K. Laenge, S. Rupp, B. Rapp and M. Rapp, "Polymer coating behavior of Rayleigh SAW resonators with gold electrode structure for gas sensor applications", in *IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control*, Vol. 54, No. 1, Jan. 2007, pp. 157-166.

92. V.Georgieva, L.Spassov, D.Spassov, N.Donkov, P.Petkov. "Tantalum pentoxide – based quartz crystal microbalance for NH<sub>3</sub> detection", Journal of Optoelectronics and Advanced Materials Vol. 9, No.2, p. 252-255 (2007).
93. C.R. dela Cruz, B. Lorenz, M.M. Gospodinov, C.W. Chu, *Restoration of ferroelectricity by pressure in multiferroic HoMn<sub>2</sub>O<sub>5</sub>*, Journal of Magnetism and Magnetic Materials **310** (2007) pp.1185-1186.
94. F. Yen, C. dela Cruz, B. Lorenz, E. Galstyan, Y. Y. Sun, M. Gospodinov, and C.W, Chu, *Magnetic Phase Diagrams of Hexagonal ErMnO<sub>3</sub>, YbMnO<sub>3</sub>, TmMnO<sub>3</sub> and HoMnO<sub>3</sub>*, Journal of Materials Research vol. **22**, **8** (2007) pp.2163-2173.
95. Iliev M.N., Hadjiev V.G., Litvinchuk A.P., Yen F., Wang Y.-Q., Sun Y.Y., Jandl S., Laverdiere J., Popov V.N., Gospodinov M.M., *Multiple-order Raman scattering from rare-earth manganites: Oxigen isotop and rare-earth substitution effects*, Phys. Rev. B: Condens. Matter 75(6) (2007) 064303/1-064303/5.
96. C. R. dela Cruz, B. Lorenz, Y.Y. Sun, Y. Wang, S.Park, S.-W. Cheong, M. M. Gospodinov, and C. W. Chu, *Pressure induced enhancement of ferroelectricity in multiferroic RMn<sub>2</sub>O<sub>5</sub>(R=Tb,Dy,Ho)*, Physical Review B **76** (2007) 174106/1-174106/7.
97. Mihailova B., Gospodinov M., Guettler B., Petrova D., Stosch R., Bismayer U., *Ferroic nanoclusters in relaxors: the effect of oxygen vacancies*, J. of Physics: Condens. Matter 19(24) (2007) 275205/1-275205/10.
98. Mihailova B., Gospodinov M., Guettler B., Stosch R., Bismayer U., *Ferroic clustering and phonon anomalies in Pb-based perovskite-type relaxors*, J. of Physics: Condens. Matter 19(27) (2007) 246220/1-246220/10.
99. Mihailova B., Bastjan M., Schuiz B., Rubhausen M., Gospodinov M., Stosch R., Guettler B., Malcherek T., Bismayer U., *Resonance Raman scattering of relaxors PbSc<sub>0.5</sub>Ta<sub>0.5</sub>O<sub>3</sub> and PbSc<sub>0.5</sub>Nb<sub>0.5</sub>O<sub>3</sub>*, Appl. Phys. Lett. 90(4) (2007) 042907/1-042907/3.
100. V.M. Skorikov, T.I. Milenov, AV. Egorysheva, P.M. Rafailov, T.D. Dudkina, M.N. Veleva, A.Ya. Vasil'ev and M.M. Gospodinov, *An optical excitation study of Ru, Rh, Re and Os doped Bi<sub>12</sub>SiO<sub>20</sub> crystals*, physica status solidi (b) Vol. **244**, Issue **9** (2007) pp. 3292-3296.
101. T.I. Milenov, P.M. Rafailov, R. Petrova, Yu.F. Kargin and M.M. Gospodinov, *X-Ray Diffraction Study of a Bi<sub>4</sub>Ge<sub>3</sub>O<sub>12</sub> Crystal*, Mater. Sci. Eng. B 138(1) (2007) 35-40.
102. A. Amova-Kostova, M. Veleva, V. Marinova, *Growth of ferroelectric Pb<sub>2</sub>ScTaO<sub>6</sub> single crystals in oxygen and hydrogen atmosphere and investigation of their dielectric properties*, J. of Optoelectronics and Advanced Materials Vol.9 ISS.2 (2007) 268-270.
103. P. Petkova, V. Marinova, M. Veleva, T. Dimov, I. Iliev, *Optical and magneto-optical properties of Bi<sub>4</sub>Ge<sub>3</sub>O<sub>12</sub> doped with aluminium and manganese*, Journal of Optoelectronics and Advanced Materials Vol.9 ISS.2 (2007) pp.278-281.
104. D. Toncheva, *Growth and electrical properties of doped Bi<sub>4</sub>Ge<sub>3</sub>O<sub>12</sub> single crystals*, Journal of Optoelectronics and Advanced Materials, Vol.9 ISS.2 (2007) pp. 286-288.
105. T. I. Milenov, V.I. Dimov, and M. M. Gospodinov, *TEM observation of two-dimensional defects in CdTe crystals*, Journal of Optoelectronics and Advanced Materials Vol.9 ISS.2 (2007) pp. 289-292.
106. T.I. Milenov, P.M. Rafailov, A.V. Egorysheva, V.M. Skorikov, R. Petrova, M.N. Veleva, T.D. Dudkina, C. Thomsen, A.Ya. Vasil'ev and M.M. Gospodinov, *XRD and Raman spectroscopic study of Ru and Os doped Bi<sub>12</sub>SiO<sub>20</sub> crystals*, Journal of Optoelectronics and Advanced Materials Vol.9 ISS.2 (2007) pp. 293-295.
107. P. M. Rafailov, C. Thomsen, U. Dettlaff-Weglikowska, B. Hornbostel and S. Roth, *Raman spectroelectrochemistry on SWNTs at higher doping levels: evidence for a transition to intercalative doping*, physica status solidi (b) **244** (2007) pp. 4060-4063.

108. H. P. Hinov and Y. Marinov, "An electro-magneto-optical resonance method for determination of the value and sign of the flexoelectric coefficients in nematics", *J. Optoelec. Adv. Mater.* **9**, 435-437 (2007).
109. V. Vitkova, V. Dolchinkova, M. D. Mitov, and I. Bivas, Membrane bending elasticity of human erythrocyte ghosts, *JOAM* **9**, 431-434 (2007).
110. J. Genova, A. Zheliaskova, M.D.Mitov, "Mono- and dissacharides influence elasticity of lipid membranes", *JOAM* **9**, 2, (2007) p.427-430.
111. S. D'Elia, C. Versace, N. Scaramuzza, Y. Marinov, A.G. Petrov, Pretilted nematic layers of 5CB on PTFE treated glass supports, *Mol. Cryst. Liq. Cryst.* **465**, 301-308 (2007).
112. Y. Marinov, G. B. Hadjichristov, A. G. Petrov, Controllable-gradient microscale PDLC electro-optical materials formed by nanosecond laser photopolymerization, *J. Optoelec. Adv. Mat.* **9**, 417 - 419 (2007).
113. A.G. Petrov, Y. Marinov, S. D'Elia, S. Marino, C. Versace, N. Scaramuzza, Dielectric and flexoelectric oscillations in PDLC studied by flexoelectric spectroscopy and laser light diffraction, *J. Optoelec. Adv. Mat.* **9**, 420-423 (2007).
114. T. Angelov, D. Radev, G. Ivanov, D. Antonov, A.G. Petrov, Hydrophobic magnetic nanoparticles: synthesis and LB film preparation, *JOAM* **9**, 424-426 (2007).
115. M. Petrov, B. Katranchev, H. Naradikian, T. Angelov, K. Panajotov, A.Zheltikov, Electrically tunable chiral nematic liquid crystal photonic crystal fibers, *J.Optoelec.Adv. Mat.* **9**, 446 - 448 (2007).
116. N. Maneva, M. Kuneva, and Th. Barthel, "Samarium as activator in cerium dioxide", *J. Optoelectronics and Advanced Materials*, **9**, No. 2, 296-298 (2007)
117. A.Og. Dikovska, P.A. Atanasov, S.Tonchev, E. Escoubas, "Periodically structured ZnO thin films for optical gas sensor application", *Sensors & Actuators A*, **140**, p.19 (2007).
118. Anna Og. Dikovska, Petar A. Atanasov, Toshko R. Stoyanchov, Andrey T. Andreev, Elka I. Karakoleva, and Blagovesta S. Zafirova Pulsed laser deposited ZnO film on side- polished fiber as a gas sensing element, *Appl. Optics*, **46**, 2481-2485 (2007).
119. A.Og.Dikovska, P.A.Aтанасов, T.R. Stoyanchov, A.Ts.Andreev, B.S.Zafirova, E.I. Karakoleva, ZnO thin film on side polished optical fiber for gas sensing application, *Appl. Surf. Sci.* **254**, 1087-1090 (2007).
120. K. Panajotov, I. Veretennicoff, Introduction to the Special Issue of Optical and Quantum Electronics Related to the Workshop "PHysics of Photonic Crystals and Metamaterials" (PPCM), *Opt. Quant. Electr.*, 39, 269, 2007.
121. T. Czyszanowski, M. Dems, H. Thienpont, K. Panajotov, Modal behavior of Photonic - Crystal Vertical - Cavity Surface - Emitting Diode Laser analyzed with Plane Wave Admittance Method, *Opt. Quant. Electr.*, 39, 427, 2007.
122. M. Dems, T. Czyszanowski, K. Panajotov, Numerical analysis of high Q-factor photonic-crystal VCSELs with plane-wave admittance method, *Opt. Quant. Electr.*, 39, 419, 2007.
123. R. Kotynski, M. Dems, K. Panajotov, Waveguiding losses of micro-structured fibres – plane wave method revisited, *Opt. Quant. Electr.*, 39, 469, 2007.
124. M. Antkowiak, R. Kotynski, K. Panajotov, F. Berghmans, H. Thienpont, Dynamic characteristics of nonlinear Bragg gratings in Photonic Crystal Fibres, *Opt. Quant. Electr.*, 38, 535, 2007.
125. M. Arteaga, M. López-Amo, H. Thienpont, K. Panajotov, Role of external cavity reflectivity for achieving polarization control and stabilization of vertical cavity surface emitting laser, *Appl. Phys. Lett.*, 90, 031117, 2007.
126. I. Gatare, K. Panajotov, M. Sciamanna, Frequency-induced polarization bistability in vertical-cavity surface-emitting lasers with orthogonal optical injection, *Phys. Rev. A*, 75, 023804, 2007.

127. A. Valle, I. Gatare, K. Panajotov, M. Sciamanna, Transverse mode switching and locking in Vertical-Cavity Surface-Emitting Lasers subject to Orthogonal Optical Injection, *IEEE Journ. Quant. Electr.*, 43, 322, 2007.
128. T. Czyszanowski, M. Dems, K. Panajotov, Impact of the hole depth on the modal behaviour of long wavelength photonic crystal VCSELs, *J. Phys. D: Appl. Phys.*, 40, 2732, 2007.
129. T. Czyszanowski, M. Dems, K. Panajotov, Single mode condition and modes discrimination in photonic-crystal 1.3  $\mu$ m AlInGaAs/InP VCSEL, *Opt. Express*, 15, 5604, 2007.
130. M. Sciamanna, I. Gatare, A. Locquet, K. Panajotov, Polarization synchronization in unidirectionally coupled vertical-cavity surface-emitting lasers, *Phys. Rev. E*, 75, 056213, 2007.
131. I. Gatare, M. Sciamanna, A. Locquet, K. Panajotov, Influence of polarization mode competition on the synchronization of two unidirectionally coupled vertical-cavity surface-emitting lasers, *Opt. Lett.*, 32, 1629, 2007.
132. T. Czyszanowski, M. Dems, K. Panajotov, Optimal Parameters of Photonic-Crystal Vertical-Cavity Surface-Emitting Diode Lasers, *J. Lightwave Techn.*, 25, 2331, 2007.
133. T.Czyszanowski, M.Dems, H.Thienpont, K.Panajotov, Optimal radii of photonic crystal holes within DBR mirrors in long wavelength VCSEL, *Opt. Express*, 15, 1301, 2007.
134. I. Gatare, M. Sciamanna, M. Nizette, K. Panajotov, Bifurcation to polarization switching and locking in vertical-cavity surface-emitting lasers with optical injection, *Phys. Rev. A*, 76, 031803, 2007.
135. A. Valle, M. Sciamanna, K. Panajotov, Nonlinear dynamics of the polarization of multitransverse mode vertical-cavity surface-emitting lasers under current modulation, *Phys. Rev. E*, 76, 046206, 2007.
136. M. Dems, K. Panajotov, Modeling of single- and multimode photonic-crystal planar waveguides with the plane-wave admittance method, *Appl. Phys. B*, 89, 19, 2007.
137. M. Arteaga, M. Valencia, M. Sciamanna, H. Thienpont M. López-Amo, and K. Panajotov, Experimental evidence of coherence resonance in a time-delayed bistable system, *Phys. Rev. Lett.*, 99, 023903, 2007.
138. N. Destouches, D. Blanc, J. Franc1, N.Hendrickx, S. Tonchev, J.-C. Pommier, P. Van Daele, O. Parriaux, Efficient and tolerant resonant grating coupler for multimode optical interconnections, *Optics Express*, Vol. **15**, No. 25, 2007, 16870-16879.
139. F. Canova, R. Clady, J.-P. Chambaret, M. Flury, S. Tonchev, R. Fechner, O. Parriaux, High-efficiency, broad band, high-damage threshold high-index gratings for femtosecond pulse compression, *Optics Express*, Vol. **15**, No. 23, 12 November 2007, 15324- 15334 / Manuscript ID: 86145.
140. M. Flury, S. Tonchev, R. Fechner, A. Schindler, O. Parriaux, High-efficiency wide-band metal-dielectric resonant rating for 20 fs pulse compression, *Journal of the European Optical Society - Rapid Publications* **2**, 07024 August 7, 2007.
141. N. Lyndin, M. Flury, S. Tonchev, R. Fechner, O. Parriaux, Design and fabrication of an all-dielectric grating with top-hat high diffraction efficiency over a broad spectral range, *Journal of the European Optical Society - Rapid Publ.* **2**, 07019 1-5, July 9, 2007.
142. R. Krajewski, J. Krezel, M. Kujawinska, O. Parriaux, S. Tonchev, M. Wissmann, M. Hartmann, J. Mohr, Technology chain for production of low-cost high aspect ratio optical structures, Book Chapter in “Recent Advances in Mechatronics”, Berlin, Springer-Verlag, p.658-662, 2007.
143. F.Pigeon, J.C.Pommier, S.Reynaud, O.Parriaux, M.Abdou Ahmed, S.Tonchev, N.Landru, J.P.Fève, Microchip-laser polarization control by destructive-interference resonant-grating mirror, *Optics Express*, Vol. **15**, No. 5, 5 March 2007.

144. M. Petrov, B. Katranchev, E. Keskinova, H. Naradikian, "The electroconvection in dimeric nematic liquid crystals", *JOAM* **9**, No. 2, 438 – 441 (2007).
145. M. Petrov, B. Katranchev, H. Naradikian, "Surface anchoring breaking in smectic C liquid crystals", *JOAM* **9**, No. 2, 442 – 445 (2007).
146. M.Petrov, E. Keskinova, B. Katranchev, "The electroconvection in the nematic liquid crystals with short range smectic C order", *J. Mol. Liq.*, **138**, 130-138 (2008).
147. Toquer G., Monge S., Antonova K., Blanc C. Nobili M., Robin J.-J., Synthesis via ATRP and anchoring properties of ammonium-terminated monofunctional or telechelic polystyrene, *Macromolecular Chemistry and Physics*, **208**, 94-102, (2007).
148. I. Gutzow, B. Petroff, J. Moeller, J. W. P. Schmelzer, "Glass Transition and the Third Principle of Thermodynamics: Reconsideration of a Classical Problem", *Physics and Chemistry of Glasses: European Journal for Glass Science and Technology B*, June (2007), v.48(3), pp.168-177.
149. I. Gutzow, J. W. P. Schmelzer, and B. Petroff, "The Phenomenology of Metastable Liquids and the Glass Transition", *Journal of Engineering Thermophysics*, (2007), v.16, No 4, pp.205-223.
150. S. Chankova, B. Petroff, K. Petrov, "Biosensors", Teaching/training material along LdVII community Programme Translational Network "Biotechnology and Transnational Network (Health Biotech)" - 2004-BG/04/B/F/TN-166032, 2007 <http://healthbiotech.org>.
151. S. Rashev, D.C. Moule and S. Djambova, "An Improved 6D Potential Energy Surface for Ammonia", *Topics in the Theory of Chemical and Physical Systems, Proceedings of the 10th European Workshop on Quantum Systems in Chemistry and Physics (QSCP-X)* held at Carthage, Tunisia, in September 2005, Series: *Progress in Theoretical Chemistry and Physics*, pp.153-160, Vol. 16, Maruani, J.; Lahmar, S.; Wilson, S.; Delgado-Barrio, G. (Eds.), 2007.
152. S. Rashev, I.Bivas and D.C. Moule, "Large Scale Vibrational Hamiltonian Calculations on Thiophosgene", *Chem.Phys.Lett.* **438** (4-6), pp.153-156 (2007).
153. S. Rashev, D.C.Moule and S.Djambova, "On the  $T_1 \rightarrow S_0$  Intersystem Crossing Rate Constant in Thiophosgene", *Chem.Phys.Lett.* **441**(1-3), pp.43-47 (2007).
154. N. Kirov, I. Dozov, J. Jordanova, G.B. Hadjichristov, M.P. Fontana, Uncorrelated jumps model for molecular orientational relaxation in liquid crystals, *J.Molec.Struct.* **839**, 84-89 (2007).
155. N. Kirov, I. Dozov, J. Jordanova, G.B. Hadjichristov, Uncorrelated jumps model for orientational relaxation in liquid crystals – nanosecond and picosecond time domains, *JOAM* **9**, 60-64, (2007), invited paper.
156. G.B. Hadjichristov, N. Kirov, I.L. Stefanov, Optical limiting in polar macromolecules in the nanosecond time range, *JOAM* **9**, 2458-2461 (2007).
157. G.B. Hadjichristov, Ch. Angelov, S.P. Petrov, Controllable narrow droplet distribution in two-dimensional PDLC films cured by pulsed laser UV irradiation, *AIP Conf.Proc. CP899*, 625-625 (2007).
158. L.I. Pavlov, G.B. Hadjichristov, S.Ts. Lazarov, V.K. Kovachev, Z. Bunzarov, I. Buchvarov, I. Nikolov, M. Iliev, Nonlinear  $\chi^{(2)}$  and  $\chi^{(3)}$  spectroscopy of magnesium sulfite hexahydrate single crystal, *Proc. SPIE Vol.6604*, 66041P–5 (2007).
159. M. Peyrard, S.C. Lopez, D. Angelov (2007) Fluctuations in the DNA double helix. *European Physical Journal-Special Topics* 147, 173-189.
160. S. Amiard, M. Doudeau, S. Pinte, A. Poulet, C. Lenain, C. Moskalenko, D. Angelov, N. Hug, A. Vindigni, P. Bouvet, J. Paoletti, E. Gilson, M.-J. Giraud-Panis (2007) A topological mechanism for TRF2-enhanced strand invasion. *Nature Str. Mol. Biol.* 14, 147-154.

161. H. Menoni, D. Gasparutto, A. Hamiche, S. Dimitrov, J. Cadet, P. Bouvet, D. Angelov (2007) SWI/SNF stimulates base excision repair of conventional nucleosome. Mol. Cell. Biol. 27, 5949-5926.
162. T. Tsvetkova, P. Sellin, R. Carius, D. Dimova-Malinovska, O. Angelov, "High-energy He<sup>+</sup> ion beam induced modification in a-SiC:H", JOAM **9**, 375, 2007.
163. P. Dawson, A.V. Zayats, S. Takahashi, L. Bischoff, O. Angelov, D. Dimova-Malinovska, T. Tsvetkova, P.D. Thownsend, "Optical contrast in ion-implanted amorphous silicon carbide nanostructures", J. Phys. D: Appl. Phys., **40**, 7492, 2007.
164. M. Ortiz, R. Mayo, E. Biémont, P. Quinet, G. Malcheva, K. Blagoev, Radiative parameters for some transitions arising from 3d<sup>9</sup>4d and 3d<sup>8</sup>4s<sup>2</sup> electronic configurations in Cu II spectrum, J. Phys. B: Atom. Mol. Opt. Phys. **40**, 167-176 (2007).
165. J. Gurell, E. Biémont, K. Blagoev, V. Fivet, P. Lundin, S. Mannervik, L. O. Norlin, P. Quinet, D. Rostohar, P. Royen, P. Schef, "Laser-probing measurements and calculation lifetimes of the 5d<sup>2</sup>D<sub>3/2</sub> and 5d<sup>2</sup>D<sub>5/2</sub> metastable levels in Ba II", Phys. Rev. A **75**, 052506 (2007).
166. E. Biémont, K. Blagoev, V. Fivet, G. Malcheva, R. Mayo, M. Ortiz, P. Quinet, Experimental and theoretical transition probabilities in singly ionized gold, Monthly Notices of Royal Astronomical Society - Main Journal **380**, 1581-1588 (2007).
167. Б. Полищук, Н. Горбева, Д. Жечев, Г. Тодоров, "Влияние интерференции атомных состояний на гальванические свойства плазмы газового разряда", Вестник Санкт Петербургского Университета, сер. Физика, 4, 2007
168. Nely Bundaleska, Zoritsa Tomova, Vasilka Steflekova and Dimo Zhechev, "Ion sputtering of cathode surface in a hollow cathode discharge", Vacuum 134, 2007 1-4
169. L. Petrov, D. Slavov, A. Gorbenko, V. Steflekova, V. Polistuk, D. Zhechev, G. Todorov "Self-induced coherence and conductivity of glow discharge", Proc. SPIE, vol. 6604, 660401 (2007).
170. V. Gencheva, R. Djulgerova, V. Mihailov, T. Dohnalik, Z. Petrovic – "On hydrogen negative ion formation and concentration measurements in hollow cathode discharge and positive column glow discharge", in "First International Workshop on Nonequilibrium Processes in Plasma Physics and Studies of Environment", Eds. Z. Petrovic, G. Malovic, M. Tasic, Z. Nikitovic, Journal of Physics: Conference Series **71** (2007) 012009 doi:10.1088/1742-6596/71/1/012009
171. E. Dimova, A. Fioretti, D. Comparat, P. Pillet, G. Stern, Magnetic or optical molasses loading for a Cs dipole trap, Proceedings of SPIE 6604, 66040M (2007).
172. D.N.Astadjov, L.I.Stoychev and N.V.Sabotinov, M2-Factor for MOPA CuBr Laser System, Proc. SPIE Vol. 6604, 66040Z, (2007)
173. D. Astadjov, L. Stoychev and N. Sabotinov, M2 of MOPA CuBr Laser Radiation, Opt Quant Electron 39(2007):603–610; DOI 10.1007/s11082-007-9113-5, (2007)
174. M.Grozeva, D.Mihailova and N.Sabotinov, Dependence of laser power and gain on the cathode length of a sputtering copper ion laser, Journal of Physics: Conference Series, 63012028, (2007)
175. D. Mihailova, M. Grozeva, N. Sabotinov, J. van Dijk, W. Brok, J. van der Mullen, Theoretical and experimental studies of the plasma processes in hollow cathode discharge lasers, 28th ICPIG Proceedings, Eds. J. Schmidt, M. Šimek, S. Pekárek, V. Prukner, IPPAS CR, v.v.i. publication, p.533-536 (2007)
176. Annemie Bogaerts, Krassimir A. Temelkov, Nikolay K. Vuchkov and Renaat Gijbels, Calculation of rate constants for asymmetric charge transfer, and their effect on relative sensitivity factors in glow discharge mass spectrometry, Spectrochimica Acta - Part B Atomic Spectroscopy 62 (4), pp. 325-336 (2007)

177. J T Mouchovski, K A Temelkov, N K Vuchkov and N V Sabotinov, Laser grade CaF<sub>2</sub> with controllable properties: growing conditions and structural imperfection, *J. Phys. D: Appl. Phys.*, vol.40, (2007)
178. M. Ilieva, V. Tsakova, N.K. Vuchkov, K.A. Temelkov, N. V. Sabotinov, UV copper ion laser treatment of poly-3,4- ethylenedioxythiophene, *Journal of Optoelectr. and Advanced Materials*, Vol. 9, No. 2, p. 303 - 306 (2007)
179. K. A. Temelkov, N. K. Vuchkov, B. L. Pan, N. V. Sabotinov, B. Ivanov, L. Lyutov, Strontium bromide vapor laser excited by a nanosecond pulsed longitudinal discharge, *Proceedings of SPIE - 6604*, art. no. 660410 (2007)
180. K. A. Temelkov, N. K. Vuchkov, P. K. Telbizov, and N. V. Sabotinov, He-Zn<sup>+</sup> laser excited by nanosecond and microsecond pulsed longitudinal high-current discharges, *Proceedings of SPIE - 6604*, art. no. 66040Y, (2007)
181. K A Temelkov, N K Vuchkov, N V Sabotinov, Experimental and theoretical determination of cross sections and rate constants for charge transfer population and radiative constants of some excited Ag<sup>+</sup>, I<sup>+</sup>, and Cu<sup>+</sup> levels, *Jornal of Physics: Conference Series*, 63, 012017, (2007)
182. Balchev, N. Minkovski, P. Stefanov, M. Shipochka and N. Sabotinov, CuBr laser treatment of titanium wafers, 14th International School on Quantum Electronics: Laser Physics and Applications, edited by Peter A. Atanasov, Tanja N. Dreischuh, Sanka V. Gateva, Lubomir M. Kovachev, Proc. of SPIE Vol. 6604, 66040X, (2007)
183. J. C. Delagnes, A. Monmayrant, P. Zahariev, A. Arbouet, B. Chatel, B. Girard, M. A. Bouchene, "Compensation of resonant atomic dispersion using a pulse shaper", *Applied Physics B: Lasers and Optics*, vol. 86, pp. 573-578, (2007).
184. P. A. Ivanov, B. T. Torosov, and N. V. Vitanov, Navigation between quantum states by quantum mirrors, *Phys. Rev. A* **75**, 012323(9) (2007).
185. G. S. Vasilev, S. S. Ivanov, and N. V. Vitanov, Degenerate Landau-Zener model: Exact analytic solution, *Phys. Rev. A* **75**, 013417(9) (2007).
186. R. G. Unanyan, B. W. Shore, M. Fleischhauer, and N. V. Vitanov, Symmetry protected creation of superposition states and entanglement using circulant Hamiltonians, *Phys. Rev. A* **75**, 022305(4) (2007).
187. V. Yannopapas and N. V. Vitanov, Spontaneous emission of two-level atoms placed within clusters of metallic nanoparticles, *J. Phys.: Cond. Matter* **19**, 096210(10) (2007).
188. N. V. Vitanov, Complete population inversion by a phase jump: an exactly soluble model, *New J. Phys.* **9**, 58(13) (2007).
189. V. Yannopapas and N. V. Vitanov, Electromagnetic Green's tensor and photon local density of states calculations for collections of spherical scatterers, *Phys. Rev. B* **75**, 115124(9), (2007)
190. X. Lacour, S. Guérin, L. P. Yatsenko, N. V. Vitanov, and H. R. Jauslin, Uniform analytic description of dephasing effects in two-state transitions, *Phys. Rev. A* **75**, 033417(6), (2007)
191. V. Yannopapas and N. V. Vitanov, Fluctuational electrodynamics in the presence of finite thermal sources, *Phys. Rev. Lett.* **99**, 053901(4), (2007)
192. E. S. Kyoseva, N. V. Vitanov, B. W. Shore, Physical realizations of coupled Hilbert-space mirrors for quantum-state engineering, *J. Mod. Opt.* **54**, S393-S413 (2007).
193. V. Yannopapas and N. V. Vitanov, First-Principles Theory of Van der Waals Forces between Macroscopic Bodies, *Phys. Rev. Lett.* **99**, 120406(4) (2007).
194. Rangelov, N. V. Vitanov and E. Arimondo, Stimulated Raman adiabatic passage into continuum, *Phys. Rev. A* **76**, 043414(8) (2007).
195. T. Torosov and N. V. Vitanov, Coherent control of a quantum transition by a phase jump, *Phys. Rev. A* **76**, 053404(7) (2007).

196. Z. I. Dimitrova, Fluctuations and dynamics of the chaotic attractor connected to an instability in a heated from below rotating fluid layer, Compt. rend. Acad. bulg. Sci. **60** 1065 (2007).
197. Yu. Lazarov, B. Dulmet, L. Spassov, "Calculation of the motional capacitance of thermosensitive quartz resonators in the framework of semi-analytical model" Comptes Rendus de l'Academie Bulgare de Sciences, Vol. 60, №5, 2007
198. R. Kalionski, T. Merodiiska, M. Dencheva-Zarkova, L. Todorova, S. Naydenova, V. Lovchinov, Z. Lalchev, I. Nedkov, A.G. Petrov, Magnetic resonance imaging by specially formulated iron oxide nanoparticles, Compt. rend. Acad. bulg. Sci. **60** (8), 893-898 (2007).
199. G.B. Hadjichristov, N. Kirov: "Nonlinear optical response of highly dipolar media. Absorption and refraction", Compt.Rend.Acad.Bulg.Sci. **60**, 27-31 (2007).

#### PAPERS PUBLISHED IN PROCEEDINGS OF CONFERENCES

1. K.T. Stoychev, M.T. Primatarowa, and R.S. Kamburova, Resonant interaction of solitons with extended inhomogeneities, AIP **899**, 621 (2007) Proc. of the BPU6.
2. G. Kamisheva, Bulgarian physical and mathematical culture in 19 century, AIP **899**, Proc. of the BPU6, Aug 2006, Istanbul, Turkey, p. 521, 2007.
3. M. Baeva, A.I. Beskrovnyi, E.L. Jadrovski, Phase Composition of the Four-Component Nitrified Steels at Increasing Manganese Concentration, AIP **899**, 583 (2007) Proc. of the BPU6.
4. M. Baeva, A.I. Beskrovnyi, A. Boianova, I. Shelkova, Investigation of Renal Stones by X-ray and Neutron Diffraction, AIP **899**, 807 (2007) Proc. of the BPU6.
5. N. Izmirova, E.Djourova, B. Aleksiev, M.Baeva, P. Blagoeva, P. Uzunov, I. Tomova, A. Boyanova, Tz. Mircheva, Utilization of natural clinoptilolite for reducing the risk of gall stones renall calculus and tumor formation, 1-st Conference Nanostructured Multifunctional Materials, Oct. 18-20, 2007, Sinaia Romania, p. 93-94.
6. L. Pramatarova, M. Dimitrova, P.C. Montgomery, E. Pecheva, S. Stavrev, M. Apostolova, N. Milinovik, A. Toth, T. Petrov, A. Petrova, Detonation generated nanodiamond reinforced calcium phosphate composites grown through laser-liquid-solid-interaction process, Proc. ILLA/LTL, 4-7 October, Smolyan, 2006 Bulgaria, pp. 245-253 (2007)
7. N. Balchev, K. Nenkov, G. Mihova, J. Pirov, "Superconducting, Magnetic and Transport Properties of RuSr<sub>2</sub>R<sub>1.4</sub>Ce<sub>0.6</sub>Cu<sub>2</sub>O<sub>10-δ</sub> (R=Eu, Sm)", CP899, Eds. S.A.Cetin and I. Hikmet, 2007, AIP, p. 584.
8. B. Terziyska, E. Vateva, D. Arsova, "Low-temperature contributions to the specific heat of Ge<sub>x</sub>As<sub>40-x</sub>S<sub>60</sub> glasses", CP899, Eds. S.A.Cetin and I. Hikmet, 2007, AIP, p.589.
9. V. Lovchinov, D. Dimitrov, A. Apostolov, P. Simeonova, J. Warhulska, I. Radulov, Magnetic properties of La<sub>0.78</sub>Pb<sub>0.22</sub>MnO<sub>3</sub> monocrystal, CP899, Eds. S.A.Cetin and I. Hikmet, 2007, AIP, p. 624 .
10. I. Radulov, V. Lovchinov, D. Dimitrov, A. Apostolov, V. Nizhankovskii, M. Daszkiewicz. Magnetic properties of HoMn<sub>2</sub>O<sub>5</sub>; CP899, Eds. S.A.Cetin and I. Hikmet, 2007, AIP, p. 627.
11. A. Stoyanova-Ivanova, S. Terzieva, V. Mihailov, V. Mikli and V. Kovachev, "AC Magnetic Susceptibility Of Elements In Ag Sheathed BSCCO (2223) Tapes With Te Addition", CP899, Eds. S. A. Cetin and I. Hikmet, 2007 AIP, p. 802.
12. D. Dimitrov, N. Piperov, I. Radulov, V. Lovchinov, Coated Magnetite Nanoparticles Behaviour in Alternate Magnetic Field; Proceedings of the 2-nd International Conference on Magnetic Refrigeration at Room Temperature, Portoroz, Slovenia, April

- 11-13, 2007; Eds: Aloiz Poredos, Alen Sarlah, International Institute of Refrigeration, 177, blvd Malesherbes 75017 Paris-France, 2007, p.99-105.
13. D. Dimitrov, N. Piperov, St. Vasileva, M. Natov, Discretely-continual model of the influence of electro-magnetic field on the nanosized ferromagnetic fluids, Conf. Proceedings, NDT-2007, 98, 3, 2007, p. 325-329.
  14. Emil Vlakhov, Roumen Kakanakov, Lilyana Kolaklieva, Yordan Marinov, Nikolay Tonchev, "Ni/NiO Nanodispersed Thin Films: Development and Applications", Proc. of Int.Conference NANOHARD 2006 "New Trends in Development of Nanostructured Thin Films, Hard and Superhard Coatings", May 28 –31, 2006, Sozopol, pp. 59-62.
  15. Emil Vlakhov, Roumen Kakanakov, Lilyana Kolaklieva, Nikolay Tonchev, " ALD approach for enhancing sensitivity of porous silicon gas sensors" Proc. of Int. Workshop NANOHARD 2007 "Development, characterization and industrial application of Nanostructured Thin Films, Hard and Superhard Coatings", May 13 -16, 2007, Velingrad, Bulgaria, pp. 79-82.
  16. Mitev, M. G., E. K. Nazarova, E. N. Dimitrov, A. L. Zahariev, J. K. Georgiev, "Automated system for investigation of resistance temperature dependence of high temperature superconductors", International Scientific and Applied Science Conference, Electronics-ET 2007, 19-21 September, Sozopol, Bulgaria, p.145 (P1.18)
  17. G. Beshkow, D. Gogowa, D. Spasow, St. Georgiev, P. Stefanow, Syntesis and Characterization of BN<sub>x</sub> Nanolayers prepared by Rapid Thermal Low Pressure Chemical Vapor Deposition, 16th European Conference on Chemical Vapor Deposition - Book of ExtendedAbsracts,Ed. Chris R. Kleijn, TU Delph, The Niderland 2007
  18. N. Nedev, M. Stoytcheva, D. Nesheva, E. Manolov, R. Brüggemann, S. Meier, Z. Levi, R. Zlatev, B. Valdez and L. Alvarez, MOS Structures Containing Amorphous Silicon Nanoparticles for Application in Memory Devices, Proc. Conference Nanotech 2007, May 20-24, Santa Clara, CA, USA, Vol. 4, pp. 485-488, 2007.
  19. G. Beskov, D. Spassov, St. Georgiev, P. Stefanov, "Properties of BN nanofilms prepared by Low Pressure Rapid Thermal Chemical Vapor Deposition" Proc. of 16 EUROCVD conference –15-22 September 2007, Hague, Netherland.
  20. L. Yourukova, K. Kolentsov, A. Zheliaskova, T. Kehlibarov, "Colour Characteristics of AC HEL Structures with a protective Chalcogenide Layer", Proc. XIII<sup>th</sup> National Conference with International Participattion, Lichting'2007, Sofia, (2007) 268-270.
  21. T. Tsvetkova, S. Balabanov, E. Borisova, L. Avramov, J. Zuk and L. Bischoff, "Optical Properties of Si and C Implanted Polymers", Proc. IX International Conference: "Laser and laser – information technologies, October 4-7, 2006, Bulgaria (2007) pp. 201-206.
  22. S. Bakalova, A. Szekeres, A. Cziraki, S. Grigorescu, G. Socol, E. Axente, I. N. Mihailescu, "Structure and optical properties of pulsed-laser-deposited AlN thin films for optoelectronic applications", Proceedings of SPIE - ROMOPTO 2006: Eighth Conference on Optics, Vol. 6785, ed. V. I. Vlad, 67850H (Aug. 1, 2007)
  23. I. D. Avramov and J. Columbus, "Performance Verification of Injection Locked STW Clocks with BAW Crystal Stability", Proc. 2007 Joint Meeteing of the European Frequeny and Time Forum (EFTF) and the IEEE International Frequency Control Symposium (IEEE-IFCS), May 29 to June 1, 2007, Geneva, Switzerland, pp. 771-778.
  24. V.L. Georgieva, P.L.Stefchev, P.K.Stefanov, L.S.Spassov, Z.G.Raicheva, K.I.Ivanova, " Liquid Phase Deposition of Thin Titanium Dioxide Films for NH<sub>3</sub> Detection", Proc. of the BPU6, 22-26 August 2006/ Istanbul, AIP vol.899, p.732, 2007.
  25. S.I.Boiadzhiev, V. Lazarova (Georgieva), M.M. Rassovska, " Sorption Properties of RF Reactive Sputtered TiO<sub>x</sub> Thin Films" Proc. of the BPU6, 22-26 August 2006/ Istanbul-Turkey, AIP Conference Proceedings, vol.899, p.765, 2007.

26. B.Dulmet, Yu. Lazarov, L. Spassov, P. Tinguy, "Last improvements in the analysis of resonant strip sensors" Proc. of the 2007 IEEE International Frequency Control Symposium jointly with the 21-th EFTF, Geneva, (Electron. version) p.363-368
27. T. Czyszanowski, R. Sarzala, M. Dems, H. Thienpont, K. Panajotov, Optimal Designs of Telecommunications Oriented Photonic-Crystal VCSELs, 9th International Conference on Transparent Optical Networks, 2007. ICTON '07. Volume 2, 1-5 July 2007 Page(s):44 – 47 (invited paper)
28. M. Sciamanna, I. Gatare, A. Locquet, K. Panajotov, Polarization Synchronization Properties of Unidirectionally Coupled VCSELs, 9th Int. Conf. on Transparent Optical Networks, 2007. ICTON '07. Volume 2, 1-5 July 2007 Page(s):40 – 43 (invited paper)
29. M. Dems, K. Panajotov, Modeling of Single-and Multimode Photonic-Crystal Planar Waveguides with Plane-wave Admittance Method: Losses and Modes Coupling, 9th International Conference on Transparent Optical Networks, 2007. ICTON '07. Volume 4, 18-22 June 2006 Page(s):245 – 248
30. M. Arizaleta Arteaga, M. López-Amo, H. Thienpont, K. Panajotov, Polarization control and stabilization of VCSELs by means of optical feedback from an extremely short external cavity, CLEO/Europe–IQEC 2007 conference, 17 - 22 June 2007 – ICM Munich, Germany.
31. T. Czyszanowski, K. Panajotov, M. Dems, Designs of Photonic-Crystal Vertical-Cavity Surface-Emitting Diode Lasers assuring high performance with minimal technological effort, CLEO/Europe–IQEC 2007 conference, 17 - 22 June 2007 – ICM Munich.
32. I. Gatare, M. Sciamanna, K. Panajotov, A. Valle, Mapping of transverse mode locking and switching in VCSELs under orthogonal optical injection, CLEO/Europe–IQEC 2007 conference, 17 - 22 June 2007 – ICM Munich, Germany.
33. I. Gatare, M. Sciamanna, A. Locquet, K. Panajotov, Bifurcation and nonlinear dynamics accompanying polarization switching in VCSELs subject to orthogonal optical injection, CLEO/Europe–IQEC 2007 conference, 17 - 22 June 2007 – ICM Munich.
34. A. Villafranca, J. Lasobras, I. Garces, G. Giuliani, S. Donati, M. Chacinski, R. Schatz, C. Kouloudmentas, D. Klonidis, I. Tomkos, P. Landais, J. Rorison, J. Pozo, W. Elsässer, J. Von Staden, G. Huyet, M. Saarinen, M. Pessa, P. Leinonen, V. Vilokkinen, M. Sciamanna, J. Danckaert, K. Panajotov, T. Fordell, A. Lindberg, J-F. Hayau, J. Poette, P. Besnard, F. Grillot, Round-Robin Measurements of Linewidth Enhancement Factor of Semiconductor Lasers: Results in COST 288 action, CLEO/Europe–IQEC 2007 conference, 17 - 22 June 2007 – ICM Munich, Germany.
35. A. Locquet, M. Sciamanna, I. Gatare, K. Panajotov, Synchronization regimes of unidirectionally coupled VCSELs with orthogonal optical injection, CLEO/Europe–IQEC 2007 conference, 17 - 22 June 2007 – ICM Munich, Germany.
36. K. Panajotov, A. Uchida, M. Sciamanna, Synchronization of chaos in mutually coupled VCSELs: numerical study, CLEO/Europe–IQEC 2007 conference, 17 - 22 June 2007 – ICM Munich, Germany.
37. K. Panajotov, I. Gatare, A. Locquet, M. Nizette, H. Thienpont, A. Uchida, M. Sciamanna, Polarization dynamics in externally driven VCSELs, ICONO/LAT Conference, Minsk, 2007, (invited talk).
38. K. Panajotov, M. Arizaleta Arteaga, M. Valencia, M. Sciamanna, M. Lopez-Amo, H. Thienpont, Feedback from an Extremely-Short External-Cavity in VCSELs and experimental observation of Coherence Resonance, Third "Rio de la Plata" Workshop on Noise, Chaos and Complexity in Lasers and Nonlinear Optics, Punta del Este, Uruguay, December 3 to 7, 2007 (invited talk).

39. K.Miloushev, T.K.Tenev, R.A.Peyeva and K.P.Panajotov, Antireflection multilayer structures for inclined incident light, CP899, p.686 (2007), American Institute of Physics 978-0-7354-0404-5/07
40. Nathalie Destouches, Danièle Blanc, Janyce Franc, Nina Hendrickx, Svetlen Tonchev, Jean-Claude Pommier, Peter Van Daele et Olivier Parriaux, Réseau résonant sur guide multimode: une efficacité de couplage mesurée de 78%, Proceedings of **JNOG 2007**, 26-èmes Journées Nationales de l'Optique Guidée, 2 au 5 juillet 2007, Grenoble.
41. Y. Jourlin, A.V. Tishchenko, S. Tonchev, C. Pétri, S. Reynaud, J.Cl. Pommier, O. Parriaux, A. Last, Y. Lacroute, Spatially resolved transmission through metal films by plasmon excitation, Proceedings of **SPP3**, Third International Conference on Surface Plasmon Photonics, European FP6 IST Network of Excellence, **ThuP21**, pp.257-261, June 17-22, 2007, Dijon, France.
42. Nikolai Lyndin, Nathalie Destouches, Tina Clausnitzer, Svetlen Tonchev, Olivier Parriaux, Zero trans- mission narrow band laser mirror using a wave-guide grating under normal incidence, Proceedings of **ECIO2007**, European Conference on Integrated Optics, **WH3**, April 25-27, 2007, Copenhagen, Denmark.
43. Florent Pigeon, Marwan Abdou Ahmed, Olivier Parriaux, Svetlen Tonchev, Nicolas Landru, Jean-Philippe Fève, Waveguide grating for microchip-laser polarization control, Proceedings of **ECIO2007**, European Conference on Integrated Optics, April 25-27, 2007, Copenhagen, Denmark.
44. O. Parriaux, R. Fechner, M. Flury, S. Tonchev, N. Lyndin, A. Schindler, Fabrication of resonant grating pulse compression element with 99% flat top efficiency for high average power femtosecond laser machining, Proceedings of **DGaO2007**, Die Deutsche Gesellschaft für angewandte Optik e.V., **P44**, vom 29. Mai bis 2. Juni 2007, im Seebad Heringsdorf, Germany.
45. Federico Canova, Jean-Paul Chambaret, Olivier Uteza, Philippe Delaporte, Marc Tondusson, Eric Freysz, Olivier Parriaux, Manuel Flury, Svetlen Tonchev, Nikolai Lyndin, 97% Top Hat Efficiency, 4 J/cm<sup>2</sup> Damage Threshold Compression Grating, Proceedings of **CLEO/QELS 2007**, Conference on Lasers and Electro-Optics, **JTuD5**, May 6–11, 2007, Baltimore, Maryland, USA.
46. A. Angelow, Covariance, “Squeezed and Coherent States: Proposal for Experimental Realization of Covariance States”, American Institute of Physics Conference Proceedings v.899, pp. 305-306 (2007)
47. Kehlibarov T., P. Pavlova. “Some from our Color and Light Investigations in the Laboratory on “Color and Light and it’s Application in Industry and Environment”, Division of Optics and Spectroscopy, ISSP-BAS, Sofia, Bulgaria”, Proceedings of Symposium “Lux e.t. Color Vespremiensis” 2007 Pannon University Vesprem Hungary (ISBN 978-963-9696-27-3)
48. R. Djulgerova, V. Mihailov, V. Gencheva, M. Todorov, J. Koperski, M. Strojecki, Z. Petrovic - “Plasma instabilities in a hollow cathode discharge demonstrated by the dynamic Ne optogalvanic signals”, Proc.5th EU-Japan Joint Symposium on Plasma Processing, Serbia, 2007, 1(1-4).
49. V. Mihailov, R.Djulgerova, V. Gencheva, M. Todorov, J. Koperski, M. Ruszczak, T. Dohnalik, Z. Petrovic – “Argon dynamic optogalvanic signals in 445-467nm spectral range for wavelength calibration”, Proc.5th EU-Japan Joint Symposium on Plasma Processing, Serbia, 2007, Po 2(1-4).
50. D. Mihailova, M. Grozeva, N. Sabotinov, J. van Dijk, W. BrokP, J. van der Mullen, Experimental and theoretical studies of the plasma processes in a sputtering hollow cathode discharge laser, 19th NNV/CPS - Symposium on Plasma Physics and Radiation Technology, April, 2007 - Lunteren, The Netherlands, B9, (2007)

51. D. Mihailova, M. Grozева, N. Sabotinov, J. van Dijk, W. Brok, J. van der Mullen, Theoretical and experimental studies of the plasma processes in hollow cathode discharge laser, 28th ICPIG Proceedings, July 15-20, 2007, Prague, 2P05-32, (2007)
52. D. Mihailova, M. Grozева, J. van Dijk, and J. van der Mullen, Sputtering hollow cathode discharge: modelling study and comparison with the experiment, 10th Euregional Workshop on the Exploration of Low Temperature Plasma Physics, Rolduc, Kerkrade, The Netherlands, November 15-16, (2007)
53. M. Ilieva, V. Tsakova, N. Vuchkov, K. Temelkov, N. Sabotinov, Surface modification of poly-3, 4-ethylenedioxythiophene by unconventional UV CuBr laser, Autumn School on Materials Science and Electron Microscopy 2007 "Microscopy - advanced tools for tomorrow's materials" Berlin, October 8th - October 11th, (2007)
54. I.P. Iliev, S. G. Gocheva-Ilieva, N.P. Denev and N. V. Sabotinov, Statistical Study of the Copper Bromide Laser Efficiency, Proc. of AIP, vol. 899 - Sixth Intern. Conf. of the Balkan Physical Union, p. 680, (2007)
55. P. Zahariev, J. Ihlemani, N. Mechkarov, G. Danev, Influence of glass pre-heating on the excimer laser glass surface treatment, 'Young Scientists' International Workshop – Applied Photonics", Laser-Laboratorium Göttingen , 26 April (2007)
56. N.Izmirova, E. Djourova, b. Aleksiev, M. Baeva, P. Blagoeva, P. Uzunov, I. Tomova, A. Boyanova, Tz. Mircheva., Utilization of natural clinoptilolite for reducing the risk of gall stones and renal calculous formation, Second Int. Symposium Advanced micro- and mesoporous materials, Sept. 6-9, 2007, Varna Bulgaria, p. 186.
57. Iliycho P. Iliev, Snezhana G. Gocheva-Ilieva, Anna A. Malinova and Nikola V. Sabotinov, Three criteria for studying the breakdown in radio-frequency discharge in nitrogen, Proc. ILLA‘2006 - IX Int. Conf. Laser and Laser-information Technologies: Fundamental Problems and Applications and LTL ‘2006 – V Intern. Symp. Laser Technologies and Lasers, Smolyan, October 4-7, 2006, pp. 324-331, April (2007)
58. K. A. Temelkov, N. K. Vuchkov, R. P. Ekov, N. V. Sabotinov, "Theoretical and experimental study of basic processes in He-TII and Ne-TII plasma – asymmetric charge transfer, Penning ionization and diffusion", Oral presentation and in Abstracts of Fifteen Int. Summer School VEIT, Sozopol, 17-21 September, p. 42, (2007)

## **BOOKS OR CHAPTERS OF BOOKS**

1. E. D. Atanassova, A. E. Belyaev, R. V. Konakova, P. M. Lytvyn, V. V. Milenin, V. F. Mitin, Effect of active actions on the properties of semiconductor materials and structures, NTC Inst. for Single Crystals, Kharkov, Ukraina, 2007, pp.216.
2. Alexander G. Petrov, Flexoelectricity and mechanotransduction (Invited Review) In: Current Topics in Membranes, vol. **58**: Mechanosensitive channels, O.P. Hamil, Ed., Elsevier/Academic Press, pp. 121-150 (2007).
3. Nikola V. Sabotinov, Metal Vapor Lasers, in Gas Lasers, Eds. Masamori Endo and Robert F. Walter, CRC Press, Series: Optical Science and Engineering Series, Volume: 121 Chapter #10 pp.449-495 (2007).