

### Publications:

Published before the appointment at Queens College

1. "Elastic waves in a local-isotropic amorphous medium". L.I. Deich and V.A. Ignatchenko. Fiz.Tv. Tela, 1983, **27**, 985 (Sov. Phys. Solid State, 27).
2. "Elastic and spin waves in an inhomogeneously deformed medium". L.I. Deich and V.A. Ignatchenko. Sov. Phys. Solid State, 1985, **29**, 469.
3. "Oscillations of a continuous two-component disordered medium". L.I. Deich and E.V. Marchuk. Sol. St. Commun., 1988, **68**, 807.
4. "Local piezoelectric effect in disordered dielectrics." L.I. Deich. J.Phys.: Condensed Matter, 1990, **2**, 2045.
5. "Phonon Spectroscopy in disordered systems with long correlations" L.I. Deich and V.A. Ignatchenko.. Sol.St.Commun., 1991, **80**, 881.
6. "On the possibility of determining a correlation function of inhomogeneities in disordered media by method of spectroscopy." L.I. Deich and V.A. Ignatchenko. Waves in Random Media, 1991, **1**, 133.
7. "Influence of the long wave fluctuations of the module of the magnetization on properties of randomly inhomogeneous ferromagnets." L.I. Deich and V.A. Ignatchenko. Zh. Eksp. Teor. Fiz., 1991, **99**, 816 (Sov. Phys. JETP, 1991, 99).
8. "Influence of stochastic magnetic structure on low-temperature dependence of ferromagnet magnetization." L.I. Deich and V.A. Ignatchenko. J. Magn. Magn. Mat., 1991, **116**, 339.
9. "The light attenuation in glasses in far infra-red." Pis'ma v JETF, 1992, **56**, 508 (Sov. Phys. JETP Lett. 1992, **56**, 492
10. "Far infra-red attenuation in glasses." L.I. Deich. Phys. Rev. B, 1994, **49**, 109.
11. "Disorder-induced resonance coupling of waves." V.A. Ignatchenko and L.I. Deich. Phys. Rev. B, 1994, **50**, 16364.
12. "On low-frequency Raman scattering in glasses." L.I. Deich. Phys. Rev. B, 1995, **51**, 8131.
13. "Magneto-elastic resonance in randomly inhomogeneous ferromagnets with zero-mean magnetostriction." L.I. Deich and V.A. Ignatchenko. Zh.Eksp. Teor. Fiz., 1995, **107**, 842 (JETP 1995, **80**, 478).
14. "Magneto-elastic resonance in disordered zero-magnetostrictive materials." V.A.

Ignatchenko and L.I. Deich. JMMM, 1995, **140-143**, 253.

15. "Polarization properties of elastic waves in anisotropic disordered media." L.I. Deich and V.A. Ignatchenko. in: Phonon Scattering in Condensed Matter VII (Cornell University, New York, 1992), p. 231.
16. "On far infra-red attenuation in glasses." L.I. Deich. in: Phonon Scattering in Condensed Matter VII (Cornell University, New York, 1992), P.233.
17. "Comparative analysis of some low-frequency vibrations state density models of the amorphous materials - applied to the As<sub>2</sub>S<sub>3</sub> glass". A. Feher, I.M. Yurkin, L.I. Deich, et al. in: Proceedings of the International Conference on Low Temperature Physics. (August 4-11, 1993, University of Oregon, Eugene).
18. "Elastic waves in random zero-mean- magnetostrictive ferromagnets." L.I. Deich, M.V. Eremenchouk, and V.A. Ignatchenko. JETP, 1996, **109**, 1379.
19. "Disorder-induced polaritons." L.I. Deych and A.A. Lisyansky. Phys. Lett. A, 1996, **220**, 125.
20. "Energy redistribution for disorder-induced crossing resonance." L.I. Deych, V.A. Ignatchenko and A.A. Lisyansky. Phys. Rev.B, 1997, **55**, 11283.
21. "Wave localization in generalized Thue-Morse superlattices with disorder." L.I. Deych, D. Zaslavsky, and A.A. Lisyansky. Phys. Rev. E., 1997, **56**, 4780.
22. "Susceptibilities in the region of a disorder- induced crossing resonance." M.V. Eremenchouk, V.A. Ignatchenko and L.I. Deych. Phys. Rev. B. 1998, **57**, 521.
23. "Impurity localization of electromagnetic waves in polariton region." L.I. Deych and A.A. Lisyansky. Phys. Lett. A, 1998, **240**, 329-333.
24. "Local States of Polaritons in Impure Ionic Crystals. Phys." V. Podolsky, L.I. Deych, and A.A. Lisyansky. Rev. B 1998, **57**, 5168-5176.
25. "Resonance tunneling of polaritons in 1-D chain with a single defect." L.I. Deych and A.A. Lisyansky. Phys. Lett. A, 1998, 243, 156-162.
26. "Resonance tunneling of electromagnetic waves through polariton gaps." L. Deych, D. Livdan, and A.A. Lisyansky. Phys. Rev. E., 1998, **57**, 7254 - 7258.
27. "Statistics of Lyapunov exponent in random periodic-on-average 1-D systems." Lev I. Deych, D. Zaslavsky, and A.A. Lisyansky. Phys. Rev. Lett. 1998, **81**, 5390.
28. "Resonance coupling of waves with a random coupling parameter." M.V. Eremenchouk, V.A. Ignatchenko, L.I. Deych and A.A. Maradudin. Phys. Rev B.1999, **59**,

29. "Defect induced resonant tunneling of electromagnetic waves through a polariton gap." L.I. Deych, A. Yamilov, and A.A. Lisyansky. *Europhys. Lett.* 1999, **46**, 524.
30. "Effects of resonant tunneling in electromagnetic wave propagation through a polariton gap." L.I. Deych, A. Yamilov, and A.A. Lisyansky. *Phys. Rev. B.* 1999, **59**, 11339.
31. "Polariton Impurity Band," A. Yamilov, L.I. Deych, and A.A. Lisyansky. *Annalen der Physik.* 1999, **8**, 293.
32. "A new criterion for the single-parameter scaling in one-dimensional localization problem." L.I. Deych, A.A. Lisyansky, and B.L. Altshuler. *Annalen der Physik,* 1999, **8**, 53.
33. "Single parameter scaling in one-dimensional localization revisited." L.I. Deych, A.A. Lisyansky, and B.L. Altshuler. *Phys. Rev. Lett.* 2000, **84**, 2678.
34. "Impurity-induced polaritons in one dimensional chain." A. Yamilov, L.I. Deych, and A.A. Lisyansky. *Journal of the Optical Society of America B,* 2000, **17**, 1498.
35. "Polariton Dispersion Law in Periodic Bragg and Near-Bragg Multiple Quantum Well Structures." L. I. Deych and A.A. Lisyansky. *Phys. Rev. B,* 2000, **62**, 4242.
36. "Concept of local polaritons and optical properties of mixed polar crystals." L. I. Deych, A. Yamilov, and A.A. Lisyansky. *Phys. Rev. B,* 2000, **62**, 6301.
37. "Polariton Local States in Periodic Bragg Multiple Quantum Well Structures." L.I. Deych, A. Yamilov, and A.A. Lisyansky. *Optics letters,* 2000, **25** 1705.

Published after the appointment at Queens College

38. "Local polariton modes and resonant tunneling of electromagnetic waves through periodic Bragg multiple quantum well structures." L.I. Deych, A. Yamilov, and A.A. Lisyansky. *Phys. Rev. B* 2001, **64**, 075321.
39. "Single parameter scaling in 1-D localized absorbing systems." L.I. Deych, A. Yamilov, and A.A. Lisyansky. *Phys. Rev. B* 2001, **64**, 024201.
40. "Single parameter scaling in 1-D Anderson localization. Exact analytical solution." L.I. Deych, A.A. Lisyansky, and B.L. Altshuler. *Phys. Rev. B* 2001 **64**, 224202.
41. "Optical spectra and inhomogeneous broadening in CdTe/CdZnTe MQW structures with defects." L.I. Deych, A. Yamilov, and A.A. Lisyansky. *Nanotechnology,* 2002, **13**, 114.

42. “Scaling of the variance of the Lyapunov exponent in two dimensional Anderson model.” Y. Asada, K. Slevin, T. Ohtsuki, L.I. Deych, A.A. Lisyansky, and B.L. Altshuler. *J. Phys. Soc. Jap.* 2003, **72** (**Supp. A**), 173.
43. “Local polariton modes in planar optical micro-cavities”, L.I. Deych and A.A. Lisyansky, *Proceedings of SPIE*, 2003, 5023, 116.
44. “Fluctuation of Lyapunov exponent in the Anderson model with dichotomic distribution of the site energies.” L.I. Deych, M.V. Erementchouk, and A.A. Lisyansky. *Phys. Rev. B*, 2003, **67**, 024205
45. “Scaling in the one-dimensional Anderson localization problem in the region of fluctuation states.” L.I. Deych, M.V. Erementchouk, and A.A. Lisyansky. *Phys. Rev. Lett.*, 2003, **90**, 126601
46. “Scaling and the center-of-band anomaly in a one-dimensional Anderson model with diagonal disorder”, L.I. Deych, M.V. Erementchouk, A.A. Lisyansky, and B.L. Altshuler, *Phys. Rev. Lett.*, 2003, **91**, 096601-1
47. “Statistics of transmission in one-dimensional disordered systems: Universal characteristics of states in the fluctuation tails”, L.I. Deych, M.V. Erementchouk, and A.A. Lisyansky, A. Yamilov, H. Cao, *Phys. Rev. B*, 2003, **68**, 174203
48. “Spectral engineering with multiple quantum well structures”, L.I. Deych, M.V. Erementchouk, and A.A. Lisyansky, *Appl. Phys. Lett.* 2003, **83**, 4562
49. “Effects of inhomogeneous broadening on reflection spectra of Bragg multiple quantum well structures with a defect”, L.I. Deych, M.V. Erementchouk, and A.A. Lisyansky, *Phys. Rev. B*, 2004, **69**, 075308
50. “Fluctuations of the Lyapunov exponent in 2D disordered systems”, K. Slevin, Y. Asada, L.I. Deych, *Phys. Rev. B*, 2004, **70**, 054201
51. “Interface disorder and inhomogeneous broadening of quantum well excitons: Do narrow lines always imply high-quality interfaces?” I. Ponomarev, L.I. Deych, A.A. Lisyansky, *Appl. Phys. Lett.*, 2004, **85**, 2496 (Selected for Virtual Journal of Nanoscale Science & Technology, v. **10** (15), 2004)
52. “Multiple-quantum-well-based photonic crystals with simple and compound elementary supercells”, E.L Ivchenko, M.M. Voronov, M.E. Erementchouk, L.I. Deych, A.A. Lisyansky, *Phys. Rev. B* **70**, 195106 (2004) (Selected for Virtual Journal of Nanoscale Science & Technology, v. **10** (21), 2004)
53. “Complex scaling approach for the quantum confined Stark effect in quantum wells”, L.I. Deych, I. Ponomarev, *Phys. Rev. B*, 71, 035342 (2005)

54. "Self-consistent approach for calculations of exciton binding energy in quantum wells", I. Ponomarev, L.I. Deych, V. Shubaev, A.A. Lisyansky, Physica E, **25**, 539 (2005)
55. "One-dimensional photonic crystals based on periodic multiple quantum well structures", L. I. Deych, M. V. Erementchouk, E. L. Ivchenko, A. A. Lisyansky, M. M. Voronov, phys. stat. sol. (c) **2**, 805 (2005).
56. "Effect of inter-wall surface roughness correlations on optical spectra of quantum well excitons", I. Ponomarev, L.I. Deych, A.A. Lisyansky, 2005, Phys. Rev. B, **71**, 155303.
57. "Optical properties of one-dimensional photonic crystals based on multiple-quantum-well structures", M.V. Erementchouk, L.I. Deych and A.A. Lisyansky, 2005, Phys. Rev. B **71**, 235335. (Selected for Virtual Journal of Nanoscale Science & Technology, v. **12** (2), 2005)
58. "Screening of External Electric Field by Photo-Induced Carriers in Bragg Multiple-Quantum-Wells", V. I. Puller, L. I. Deych, A. A. Lisyansky, M. V. Erementchouk, Applied Physics Letters, 2005, **87**, 052104
59. "Electric field induced narrowing of exciton line width", I. Ponomarev, L.I. Deych, A.A. Lisyansky, 2005, Phys. Rev. B, **72**, 115304
60. "Effects of spatial non-uniformity on laser dynamics", L.I. Deych, 2005, Phys. Rev. Lett. **95**, 043902.
61. "Effects of spatial non-uniformity of cavity dielectric constant on lasing dynamics", L. Deych, 2005, Proceedings of SPIE, **5924**, 0B-1.
62. "Long-living optical modes in a one-dimensional chain of microspheres", L. Deych and A. Roslyak, 2005, phys. stat. sol. c, **2**, 3908.
63. "Luminescent properties of MQW-based photonic crystals", M. Erementchouk, L. Deych and A.A. Lisyansky, 2005, phys. stat. sol. c, **2**, 3903.
64. "Photonic band mixing in linear chains of optically coupled microspheres", L. Deych and A. Roslyak, 2006, Phys. Rev. E, **73**, 036606. (Selected for Virtual Journal of Nanoscale Science & Technology, v. **13** (11), 2006)
65. "Spectral properties of exciton polaritons in one-dimensional resonant photonic crystals", M. Erementchouk, L. Deych and A.A. Lisyansky, 2006, Phys. Rev. B, **73**, 115321.
- Published after promotion to Associate Professor
66. "Self-consistent Hartree method for calculations of exciton binding energy in quantum wells" V. Shubaev, L.I. Deych, I. Ponomarev, and A.A. Lisyansky, 2006, Microstructures and Superlattices, **40**, 77–92

67. "Applicability of the diffusion model to random lasers with non-coherent feedback", M. A. Noginov, J. Novak, D. Grigsby and L. Deych, 2006, *J. Opt. A: Pure Appl. Opt.* **8**, S285–S295
68. "Photoluminescence Spectroscopy of One-Dimensional Resonant Photonic Crystals", M.M. Voronov, E.L. Ivchenko, M.V. Erementchouk, L.I. Deych, A.A. Lisysky, 2007, *J. Luminescence*, **125**, 112 – 117
69. "Exciton luminescence in one-dimensional resonant photonic crystals: A phenomenological approach", L.I. Deych, M.V. Erementchouk, A.A. Lisysky, E.L. Ivchenko, M.M. Voronov, 2007, *Phys. Rev. B*, **76**, 075350 (Selected for Virtual Journal of Nanoscale Science & Technology, v. **16** (12), 2007)
70. "Nonlinear Thermal Effects in Optical Microspheres at Different Wavelength Sweeping Speeds", C. Schmidt, A. Chipouline, T. Pertsch, A. Tünnermann, O. Egorov, F. Lederer, L. Deych, 2008, *Optics Express*, **16**, 6285
71. "Propagation of fundamental modes in coupled microspheres", L.I. Deych, C. Schmidt, A. Chipouline, T. Pertsch, A. Tünnermann, 2008, *Phys. Rev. A (Rapid Communications)*, **77**, 051801 (R).
72. "Propagation of the fundamental whispering gallery modes in a linear chain of microspheres", L.I. Deych, C. Schmidt, A. Chipouline, T. Pertsch, A. Tünnermann, 2008, *Applied Physics B*, **93**, 21.
73. "Statistical properties of one-dimensional random lasers", O. Zaitsev, Lev, Deych, V. Shuvayev, 2009, *Phys. Rev. Lett.* **102**, 043906.
74. "Light Modulator on excitons in a quantum well of an optical microcavity", S. G. Erokhin, L.D. Deych, A.A. Lisysky, A.V. Granovsky, 2009, *Technical Physics Letters*, **35**, 785.
75. "Dynamics of the radiative recombination in cylindrical nanostructures with type-II band alignment", V. Shuvayev, I. Kuskovsky, L. Deych, Y. Gu, Y. Gong, G. F. Neumark, M. C. Tamargo, and A.A. Lisysky, 2009, *Phys. Rev. B*, **79**, 115307
76. "Diffusion of light in disordered photonic crystals", M.V. Erementchouk, L. Deych, H. Noh, H. Cao, and A. Lisysky, 2009, *J. Phys: Condensed Matter*, **21**, 17540
77. "Luminescence properties of a Fibonacci photonic quasicrystal", Vasilios Passias, Zhou Shi, Nikesh Valappil, Lev Deych, Alexander Lisysky, and Vinod M. Menon, 2009 *Optics Express*, **17**, 6636
78. "Observation of optical coupling in microdisk resonators", C. Schmidt, A. Chipouline, T. Käsebier, E.B., Kley, A. Tünnermann, T. Pertsch, V. Shuvayev, L.I. Deych, 2009 *Phys. Rev. A*, **80**, 043841

79. "Exciton-Lattice-Polaritons in Multiple-Quantum-Well based Photonic Crystals", D. Goldberg, L. I. Deych, A. A. Lisyansky, Z. Shi, V. M. Menon, V. Tokranov, M. Yakimov, S. Oktyabrsky, 2009, *Nature Photonics*, **3**, 662
80. "Rayleigh scattering of whispering gallery modes of microspheres due to a single dipole scatterer", L.I. Deych and J.T. Rubin, 2009, *Phys. Rev A* (Rapid Communication), **80**, 061805 (R).
81. "Recent developments in the theory of multimode random lasers" (Review article), O. Zaitsev and L.I. Deych, 2010, *Journal of Optics A*, (Special issue), **12**, 024001
82. "Diagrammatic semiclassical laser theory", O. Zaitsev and L. Deych, 2010, *Phys. Rev. A*, **81**, 023822.
83. "Ab initio theory of defect scattering in spherical whispering-gallery-mode resonators", J.T. Rubin, and L.I. Deych, 2010, *Phys. Rev. A*, **81**, 053827
84. "Optical transport and statistics of radiative losses in disordered chains of microspheres", Chao-Sheng Deng, Hui Xu, and Lev Deych, 2010, *Phys. Rev. A* (Rapid Communications), **82**, 041803 (R).
85. "Effect of size disorder on the optical transport in chains of coupled microspherical resonators", Chao-Sheng Deng, Hui Xu, and Lev Deych, 2011, *Opt. Express*, **19**, 6923.
86. "Plasmon-resonance-induced enhancement of the reflection band in a one dimensional metal nanocomposite photonic crystal", 2011, S. Husaini, L. Deych and V. Menon, **36**, 1368.
87. "Ab initio description of nonlinear dynamics of coupled microdisk resonators with application to self-trapping dynamics," 2011, H. Ramezani, T. Kottos, V. Shuvayev, and L. Deych, *Phys Rev A* **83** 053839.
88. "Defect-induced whispering-gallery-mode resonances in optical microdisk resonators", 2011, Lev Deych, Michel Ostrowski, and Yasha Yi, *Opt. Lett.* **36** (16), 3154.
89. "Comment on ``Modal expansion approach to optical-frequency-comb generation with monolithic whispering-gallery-mode resonators''", Lev Deych, 2011, *Phys Rev A* **84** 017801.
90. "Optical forces due to WGM spherical microresonators and their manifestation in optically induced orbital motion of nanoparticles", 2011, J. Rubin, L. Deych, *Phys Rev. A* **84**, 023844.
91. "On optical forces in spherical whispering gallery mode resonators", 2011, J. Rubin, L. Deych, *Optics Express*, **19**, 22337.
92. "Resonant enhancement of magneto-optical polarization conversion in microdisk resonators", 2011, L. Deych, C. Meriles, V. Menon, *Appl. Phys. Lett.* **99**, 241107
93. "About possibility of bistable dynamics in lasers with single-mode cavities", 2013, Vladimir Shuvayev, Vinod Menon, Alexander Lisyansky, and Lev Deych, *J. Opt. Soc. Am B*, **30**, 79