**Curriculum Vitae**

**Ivan V. Ignatiev**,

Prof. Dr., 04.07.1951, male, Russian Federation

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Current status: leading researcher of Spin Optics laboratory & Professor at St.-Petersburg State University

**Academic education**

Leningrad State University, graduation 1974

**Academic degrees**

Dr. Sci., Thesis “Energy and spin dynamics of carriers in semiconductor quantum dots”

St. Petersburg State University, 2008

Candidate Thesis (PhD) “Vibronic spectra of crystals doped with rare-earth ions”

Vavilov State Optical Institute, 1979

**Work experience**

since 1987 – present: Member of staff, St. Petersburg State University

1974 – 1987: Member of staff, Vavilov State Optical Institute

**Research Interests**

Spectroscopy of semiconductor nanostuctures, exciton spectroscopy and dynamics, spin phenomena, quantum beats, electron-nuclear spin dynamics.

**International Collaboration**

1997 – 2004: Lab of Prof. Yasuaki Masumoto, Institute of Physics, University of Tsukuba, Japan

2004 – present: Lab of Prof. Manfred Bayer, Technical University of Dortmund, Germany

**Teaching Experience**

Lessons:

1. Physics and technology of epitaxial systems
2. Ultrafast spectroscopy of semiconductor heterostructures

Scientific advisor for PhD students:

1. I. A. Yugova, PhD in 2002
2. E. V. Ubyivovk, PhD in 2008
3. R. V. Cherbunin, PhD in 2010
4. V. G. Davydov, PhD in 2012
5. M. Yu. Petrov, PhD in 2013
6. M. S. Kuznetsova, PhD in 2014
7. A. V. Trifonov, PhD in 2016
8. A. V. Mikhailov, PhD in 2017
9. P. S. Grigoryev, PhD in 2017

**Selected publications (~100 in total)**

1. I. V. Ignatiev, I.E.Kozin, H.-W.Ren, S. Sugou, Y.Masumoto. "*Anti-Stokes photoluminescence of InP self-assembled quantum dots in the presence of electric current*". Phys. Rev. B, v. **60**, R14001, (1999) (4 pages).
2. I. V. Ignatiev, I. E. Kozin, S. V. Nair, H.-W. Ren, S. Sugou, Y. Masumoto. "*Carrier relaxation dynamics in InP quantum dots studied by artificial control of nonradiative losses*." Phys. Rev. B **61**, 15633 (2000).
3. Y. Masumoto, I. V. Ignatiev, I. E. Kozin, V. G. Davydov, S. V. Nair, H.-W. Ren, J.-S. Lee, S. Sugou. "*Breakdown of the phonon bottleneck effect in self-assembled quantum dots*", Jpn. J. Appl. Phys. **40**, 1947 (2001).
4. I. V. Ignatiev, I. E. Kozin, V. G. Davydov, S. V. Nair, J.-S. Lee, H.-W. Ren, S. Sugou, Y. Masumoto. "*Phonon resonances in photoluminescence spectra of self-assembled quantum dots in electric field*." Phys. Rev. B **63**, 075316 (2001).
5. I. Ya. Gerlovin, Yu. K. Dolgikh, S. A. Eliseev, V. V. Ovsyankin, Yu. P. Efimov, V. V. Petrov, I. Vi. Ignatiev, I. E. Kozin, Y. Masumoto. "*Fine structure and spin dynamics of excitons in the GaAs/AlxGa1-xAs superlattices*" Phys. Rev. B **65**, 035317-1 - 10 (2002).
6. I.A. Yugova, V.G. Davydov, I. Ya. Gerlovin, I.V. Ignatiev, I.E. Kozin, M. Sugisaki and Y. Masumoto, “*Spin quantum beats in the Stokes shifted photoluminescence of InP quantum dots*”, Physica Status Solidi (a) **190**, 2, 547-550 (2002).
7. I. E. Kozin, V. G. Davydov, I. V. Ignatiev, A. V. Kavokin, K. V. Kavokin, G. Malpuech, Hong-Wen Ren, M. Sugisaki, S. Sugou, and Y. Masumoto, «*Zero-field spin quantum beats in charged quantum dots*», Phys. Rev. B 65, 241312 (R) (2002).
8. Ivan V. Ignatiev and Igor E. Kozin «*Dynamics of carrier relaxation in quantum dots*». In «Semiconductor Quantum Dots», Eds. Yasuaki Masumoto and Takagahara. Springer series «Nano Science and Technology»,Springer-Verlag 2002, p. 245–293.
9. I. A. Yugova, I. Ya. Gerlovin, V. G. Davydov, I. V. Ignatiev, I. E. Kozin, H. W. Ren, M. Sugisaki, S. Sugou, and Y. Masumoto, "*Fine structure and spin quantum beats in InP quantum dots in a magnetic field*", Phys. Rev. B **66**, 235312 (2002).
10. I. V. Ignatiev, I. Ya. Gerlovin, M. Ikezawa, V. K. Kalevich, S. Yu. Verbin, and Y. Masumoto, "*Long-lived spin polarisation in the charged InP quantum dots*", Physica E **17**, 361-4 (2003).
11. I. Ya. Gerlovin, Yu. K. Dolgikh, S. A. Eliseev, V. V. Ovsyankin, Yu. P. Efimov, I. V. Ignatiev, V. V. Petrov, S.Yu.Verbin, and Y. Masumoto, “*Spin dynamics of carriers in the GaAs quantum wells in an external electric field*.” Phys. Rev. B **69**, 035329 (2004).
12. A.V. Maleev, I. V. Ignatiev, I.Ya. Gerlovin, I.E. Kozin, and Y. Masumoto, “*Temperature behavior of hot carrier dynamics in InP quantum dots*”, Phys. Rev. B **71**, 195323 (2005).
13. M. Ikezawa, B. Pal, Y. Masumoto, I. V. Ignatiev, S. Yu. Verbin, and I. Ya. Gerlovin, “*Submillisecond electron spin relaxation in InP quantum dots*”, Phys. Rev. B **72**, 153302 (2005).
14. I. Ya. Gerlovin, Yu. P. Efimov, Yu. K. Dolgikh, S. A. Eliseev, V. V. Ovsyankin, V. V. Petrov, R. V. Cherbunin, I. V. Ignatiev, I. A. Yugova, L. V. Fokina, A. Greilich, D. R. Yakovlev, M. Bayer, “*Electron-spin dephasing in GaAs/AlGaAs quantum wells with a gate-controlled electron density*”. Phys. Rev. B 75, 115330 (2007).
15. Bipul Pal, Sergey Yu. Verbin, Ivan V. Ignatiev, Michio Ikezawa, Yasuaki Masumoto, “*Nuclear-spin effects in singly negatively charged InP quantum dots*”, Phys. Rev. B **75**, 125322 (2007).
16. M. Yu. Petrov, I. V. Ignatiev, S. V. Poltavtsev, A. Greilich, A. Bauschulte, D. R. Yakovlev, and M. Bayer, “*Effect of thermal annealing on the hyperfine interaction in InAs/GaAs quantum dots*”, Physical Review B **78**, 045315 (2008).
17. Roman V. Cherbunin, Sergey Yu. Verbin, Thomas Auer, Dmitri R. Yakovlev, Dirk Reuter, Andreas D. Wieck, Ilya Ya. Gerlovin, Ivan V. Ignatiev, Dmitry V. Vishnevsky, and Manfred Bayer, “*Dynamics of the nuclear spin polarization induced by optically oriented electrons in a (In,Ga)As/GaAs quantum dot ensemble*”, Phys. Rev. B **80**, 035326 (2009) (8 pages).
18. M. Yu. Petrov, G.G. Kozlov, I. V. Ignatiev, R. V. Cherbunin, D. R. Yakovlev, and M. Bayer, “*Coupled electron-nuclear spin dynamics in quantum dots: A graded box model approach*”, Phys. Rev. B **80**, 125318 (2009).
19. K. Flisinski, I. Ya. Gerlovin, I. V. Ignatiev, M. Yu. Petrov, S. Yu. Verbin, D. R. Yakovlev, D. Reuter, A. Wieck, and M. Bayer, “*Optically Detected Magnetic Resonance at the Quadrupole-Split Nuclear States in InGaAs/GaAs Quantum Dots*”, Phys. Rev. B **82**, 081308(R) (2010).
20. M. Yu. Petrov, R. V. Cherbunin, K. Flisinski, I. Ya. Gerlovin, I. V. Ignatiev, M. S. Kuznetsova, D. R. Yakovlev, D. Reuter, A. D. Wieck, and M. Bayer, “*Resonant nuclear spin pumping in InGaAs quantum dots*,”, Phys. Rev. B **84**, 041304(R) (2011).
21. M. S. Kuznetsova, K. Flisinski, I. Ya. Gerlovin, I. V. Ignatiev, K. V. Kavokin, S. Yu. Verbin, D. R. Yakovlev, D. Reuter, A. D. Wieck, and M. Bayer, “*Hanle effect in (In,Ga)As quantum dots: Role of nuclear spin fluctuations*”, Phys. Rev. B **87**, 235320 (2013)
22. M. S. Kuznetsova, K. Flisinski, I. Ya. Gerlovin, M. Yu. Petrov, I. V. Ignatiev, S. Yu. Verbin, D. R. Yakovlev, D. Reuter, A. D. Wieck, and M. Bayer, *Nuclear magnetic resonances in (In,Ga)As/GaAs quantum dots studied by resonant optical pumping***,** Phys. Rev. B **89**, 125304 (2014)
23. D. K. Loginov, A. V. Trifonov, and I. V. Ignatiev, *Effect of uniaxial stress on the interference of polaritonic waves in wide quantum wells*, Phys. Rev. B, **90**, 075306 (2014)
24. A. V. Trifonov, S. N. Korotan, A. S. Kurdyubov, I. Ya. Gerlovin, I. V. Ignatiev, Yu. P. Efimov, S. A. Eliseev, V. V. Petrov, Yu. K. Dolgikh, V. V. Ovsyankin, and A. V. Kavokin, *Nontrivial relaxation dynamics of excitons in high-quality InGaAs/GaAs quantum wells*, Phys. Rev. B **91**, 115307 (2015).
25. A. Tzimis, A. V. Trifonov, G. Christmann, S. I. Tsintzos, Z. Hatzopoulos, I. V. Ignatiev, A. V. Kavokin, and P. G. Savvidis, *Strong coupling and stimulated emission in single parabolic quantum well microcavity for terahertz cascade*, Appl. Phys. Lett. **107**, 101101 (2015).
26. A. V. Trifonov, I. Ya. Gerlovin, I. V. Ignatiev, I. A. Yugova, R. V. Cherbunin, Yu. P. Efimov, S. A. Eliseev, V. V. Petrov, V. A. Lovtcius, and A. V. Kavokin, *Multiple frequency quantum beats of quantum confined exciton states*, Phys. Rev. B (Rapid), **92**, 201301(R) (2015).
27. A. V. Trifonov, E. D. Cherotchenko,J. L. Carthy, I. V. Ignatiev, A. Tzimis, S. Tsintzos, Z. Hatzopoulos, P. G. Savvidis, and A. V. Kavokin, *Dynamics of the energy relaxation in a parabolic quantum well laser*, Phys. Rev. B **93**, 125304 (2016).
28. D. K. Loginov, P. S. Grigoryev, Yu. P. Efimov, S. A. Eliseev, V. A. Lovtcius, V. V. Petrov, E. V. Ubyivovk, and I. V. Ignatiev, *Reduction of exciton mass by uniaxial stress in GaAs/AlGaAs quantum wells*, Phys. Stat. Sol. (b) **253**, 1-8 (2016).
29. E. S. Khramtsov, P. A. Belov, P. S. Grigoryev, I. V. Ignatiev, S. Yu. Verbin, Yu. P. Efimov, S. A. Eliseev, V. A. Lovtcius, V. V. Petrov, and S. L. Yakovlev, *Radiative decay rate of excitons in square quantum wells: Microscopic modeling and experiment,*J. Appl. Phys. **119**, 184301 (2016).
30. P. S. Grigoryev, O. A. Yugov, S. A. Eliseev, Yu. P. Efimov, V. A. Lovtcius, V. V. Petrov, V. F. Sapega, and I. V. Ignatiev, *Inversion of Zeeman splitting of exciton states in InGaAs quantum wells*, Phys. Rev. B **93**, 205425 (2016).
31. P.S. Grigoryev, A.S. Kurdyubov, M.S. Kuznetsova, I.V. Ignatiev, Yu.P. Efimov, S.A. Eliseev, V.V. Petrov, V.A. Lovtcius, P.Yu. Shapochkin, *Excitons in asymmetric quantum wells*, Superlattices and Microstructures **97,** 452-462 (2016).
32. M. S. Kuznetsova, R. V. Cherbunin, I. Ya. Gerlovin, I. V. Ignatiev, S. Yu. Verbin, D. R. Yakovlev, D. Reuter, A. D. Wieck, and M. Bayer, *Spin dynamics of quadrupole nuclei in InGaAs quantum dots,* Phys. Rev. B **95**, 155312 (2017).
33. A. S. Kurdyubov, A. V. Trifonov, I. Ya. Gerlovin, I. V. Ignatiev, and A. V. Kavokin, *Photoinduced Absorption of THz Radiation in Semi-Insulating GaAs Crystal*, Phys. Solid St. 59, 1298–1301 (2017).
34. S. Yu. Bodnar, P. S. Grigoryev, D. K. Loginov, V. G. Davydov, Yu. P. Efimov, S. A. Eliseev, V. A. Lovtcius, E. V. Ubyivovk, V. Yu. Mikhailovskii, and I. V. Ignatiev, *Exciton mass increase in a GaAs/AlGaAs quantum well in a transverse magnetic field*, Phys. Rev. B **95**, 195311 – Published 22 May 2017.
35. P. S. Grigoryev, V. G. Davydov, S. A. Eliseev, Yu. P. Efimov, V. A. Lovtcius, P. Yu. Shapochkin, I. V. Ignatiev, and M. Bayer, *Exciton-light coupling in (In,Ga)As/GaAs quantum wells in longitudinal magnetic field*, Phys. Rev. B, **96**, 155404 (2017)
36. A.S. Kurdyubov, A. V. Trifonov, I. Ya. Gerlovin, I. V. Ignatiev, and A. V. Kavokin, *Impurity-activated photoinduced modulation of terahertz waves in GaAs crystal*, AIP Advances **7**, 115222 (2017).
37. A.V. Trifonov, E. S. Khramtsov, K. V. Kavokin, I. V. Ignatiev, A. V. Kavokin, Y. P. Efimov, S. A. Eliseev, P. Yu. Shapochkin, and M. Bayer, Nanosecond Spin Coherence Time of Nonradiative Excitons in GaAs/AlGaAs Quantum Wells, Phys. Rev. Lett. **122**, 147401 (2019).
38. E. S. Khramtsov, P. S. Grigoryev, D. K. Loginov, I. V. Ignatiev, Yu. P. Efimov, S. A. Eliseev, P. Yu. Shapochkin, E. L. Ivchenko, and M. Bayer, Exciton spectroscopy of optical reflection from wide quantum wells, Phys. Rev. B **99**, 035431 (2019)