MIKHAIL LADANOV

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EDUCATION

2009 -present **Ph.D. Program in Electrical Engineering**
University of South Florida, Department of Electrical Engineering, Tampa, FL.
Advisor: Dr. A. Kumar.

2005-2009: **Master's Degree in Applied Physics**
University of South Florida, Department of Physics, Tampa, FL.
Advisor: Dr. M. Munoz.

2003-2005: **Master's Degree in Semiconductor Physics and Microelectronics**
Department of Physics, Novosibirsk State University, Russia.

Thesis: "*Vibrational spectroscopy of periodic semiconductor nanostructures with quantum dots*".
Advisor: Dr. A.G. Milekhin.

Measuring Raman spectra of periodic semiconductor structures with quantum dots of different shapes in different scattering geometries to obtain displaced due to the mechanical stress frequencies of TO and LO phonons; as well as frequencies of interface phonons. Using experimental frequencies of optical phonons, calculating the frequencies of interface phonons in the approximation of dielectric continuum. Showing adequateness of dielectric continuum approximation for calculating the frequencies of interface phonons in InAs/$Al_xGa_{1-x}As$ quantum-dot structures with any value of *x*.

1999-2003: **Bachelor's Degree in Semiconductor Physics and Microelectronics**
Department of Physics, Novosibirsk State University, Russia.

Thesis: "*IR spectroscopy of periodical semiconductor nanostructures with InAs and AlAs quantum dots*".
Advisor: Dr. A.G. Milekhin.

Developing dielectric continuum model for periodic InAs/AlAs structures with AlAs/InAs quantum dots. Calculating interface InAs- and AlAs-like modes localized near AlAs/InAs interfaces. Measuring IR spectra of periodic InAs/AlAs structures with AlAs/InAs quantum dots. Fitting of the calculated IR reflection spectra to

experimental ones.

WORK EXPERIENCE

August 2009 – present:	Graduate Associate, Department of Electrical Engineering, University of South Florida
August 2005 – July 2009:	Graduate Associate, Department of Physics, University of South Florida
September 2002 – May 2005:	Engineer, "Laboratory of Physical Chemistry of Semiconductor Surface and Semiconductor - Dielectric Systems", Institute of Semiconductor Physics, Novosibirsk, Russia.
October 2003 – June 2004:	Engineer, Science and Educational Center "Molecular design and environmental technologies".

AWARDS

Award of XLI International Scientific Student Conference "Student and scientific and technological advance". 2003.

TEACHING EXPERIENCE

Department of Physics, College of Arts and Sciences, University of South Florida, Tampa, FL

1. PHY2053L - General Physics I Laboratory
    a. Spring 2007 – 3 cr.hr.
    b. Fall 2007 – 1cr.hr.
    c. Fall 2008 – 3cr.hr.
2. PHY2049L - General Physics II Laboratory
    a. Spring 2008 – 3cr.hr.
    b. Summer 2008 – 2cr.hr.
    c. Summer 2009 – 3cr.hr.
3. PHZ2103 - Problems General Physics II
    a. Fall 2007 – 2cr.hr.

AREAS OF EXPERTISE

CHARACTERIZATION TECHNIQUES

Fourier Transform Infrared Spectroscopy (FTIR), Visible and UV Reflectance and Transmittance Spectroscopy, Raman Spectroscopy, Atomic Force Microscopy (AFM), Scanning Electron Microscopy (SEM), Energy Dispersive Spectroscopy (EDS), X-Ray Diffraction Spectroscopy (XRD), Focused Ion Beam (FIB), Ellipsometry, Photoluminescence (PL)

GROWTH TECHNIQUES

Sputtering, Electron Beam Evaporation, CVD, Hydrothermal

CERTIFICATES

Certificate of Completion, NREC, *Hitachi SU-70 Scanning Electron Microscope*, March 14, 2011

Certificate of Training, DEH&S, *Lab Safety/HazWaste (LRS 206)*, August 11, 2010

Curriculum Completion Report, CITI, *Responsible Conduct of Research for Engineers*, August 6, 2010

Certificate of Completion, NREC, *Focused Ion Beam*, August 4, 2010

Certificate of Training, DEH&S, *Lab Safety/HazWaste (LRS 206)*, January 13, 2010

Certificate of Completion, NREC, *Hitachi Scanning Electron Miscroscope*, November 6, 2009

Certificate of Completion, NREC, *Atomic Force Microscopy*, October 6, 2009

Certificate of Completion, NREC, *Electron Beam Evaporator*, January 1, 2008

Certificate of Completion, NREC, *Karl Suss Mask Aligner*, January 21, 2007

PUBLICATIONS

1. **Mikhail Ladanov**, Manoj K. Ram, Garrett Matthews, Ashok Kumar, *Structure and Opto-electrochemical Properties of ZnO Nanowires Grown on n-Si Substrate,* Langmuir 27 (14), 9012-9017, 2011
2. **Mikhail Ladanov**, Kranthi Kumar Elineni, Manoj Ram, Nathan D. Gallant, Ashok Kumar, Garrett Matthews, *A Resistless Process for the Production of Patterned, Vertically Aligned ZnO Nanowires*, Mater. Res. Soc. Symp. Proc. Vol. 1302, 2011
3. **Mikhail Ladanov**, Manoj Ram, Ashok Kumar, Garrett Matthews, *Novel Aster-like ZnO Nanowire Clusters for Nanocomposites*, Mater. Res. Soc. Symp. Proc. Vol. 1312, 2011
4. McLaughlin, Keith; **Ladanov, Mikhail**; Oleynik, Ivan; Zybin, Sergey; Elert, Mark; White, C. T., *Anomalous elastic response of diamond single crystals to shock compression*. *American Physical Society, APS March Meeting, March 5-9, 2007, abstract #B21.003*

5. A.G. Milekhin, A.I. Toropov, A.K. Bakarov, **M.Yu. Ladanov**, A.K. Gutakovsky, D. A. Tenne,G. Zanelatto, J. C. Galzerani, S. Schulze, and D. R. T. Zahn, *Phonons in InGaAs/AlGaAs Quantum Dot Superlattices: a Raman study*, Proceedings of 12th Int.Conference on Narrow Gap Semiconductors, 3-7 July, 2005, Toulouse, France, invited talk, Institute of Physics Conference Series, eds.J.Kono, J.Leotin (Taylor & Francis, New York) 187, 99-106, (2006) ISBN 0-7503-1016-2.
6. **M. Ladanov**, I. Oleynik, S. Zybin, M. Elert, C. White, *Molecular dynamics simulation of shock compression of silicon*, American Physical Society, APS March Meeting, March 13-17, 2006, abstract #W42.004
7. **M. Yu. Ladanov**, A. G. Milekhin , A. I. Toropov, A. K. Bakarov, A. K. Gutakovskii1, D. A. Tenne, S. Schulze and D. R. T. Zahn, *Interface phonons in semiconductor nanostructures with quantum dots*, Journal of Experimental and Theoretical Physics 101-3, 554-561 (2006).
8. A.G. Milekhin, **M.Yu.Ladanov**, W.V. Lundin, A.I.Besulkin, A.Smirnov, V.Yu. Davydov, C. Himcinschi, M. Friedrich, and D.R.T. Zahn, *IR reflection of optical phonons in GaN/AlGaN superlattices*, Int.Conference Phonons-2004, St.Petersburg, Russia, 2004, Physica Status Solidi (c), 1, Issue 11 , Pages 2733 – 2736 (2004).
9. A.G.Milekhin, A.I.Nikiforov, **M.Yu.Ladanov**, O.P. Pchelyakov, D.N.Lobanov, A.V.Novikov, Z.F.Krasil'nik, S.Schulze, and D.R.T.Zahn: *Vibrational spectrum of Ge/Si Structures with Quantum Dot: influence of growth temperature and substrate orientation*; Abstract book of VI Russian Conference of Semiconductor Physics, 27-31 October 2003, p.384
10. A.G.Milekhin, A.I.Nikiforov, **M.Yu.Ladanov**, O.P. Pchelyakov, S.Schulze, D.R.T.Zahn: *Raman Scattering by Strained and Relaxed Ge Quantum Dots*; 10th Seminar of Asia-Pacific Academy of Materials (APAM) 2-6 June, 2003, Novosibirsk, Russia, Proceedings of X Topical Seminar and III Conference "Materials of Siberia" "Nanoscience and technology" devoted to 10th anniversary of APAM, Novosibirsk, Russia, 273 (2003)
11. A.G.Milekhin, A.I.Nikiforov, **M.Yu.Ladanov**, O.P. Pchelyakov, D.N.Lobanov, A.V.Novikov, Z.F.Krasil'nik, S.Schulze, and D.R.T.Zahn: *Phonons in Ge/Si Quantum Dot Structures: influence of growth temperature;* Physica E, 21 (2-4) pp. 464-468 (2004).
12. A.G.Milekhin, A.I.Toropov, A.K.Bakarov, **M.Yu.Ladanov**, G.Zanelatto, J.C.Galzerani, S.Schulze, and D.R.T.Zahn, *Vibrational spectroscopy of InAs and AlAs Quantum Dot Structures*, Physica E: Low-dimensional Systems and Nanostructures, 21 (2-4) pp.241-246 (2004).
13. A.G.Milekhin, A.I.Toropov, A.K.Bakarov, **M.Yu.Ladanov**, G.Zanelatto, J.C.Galzerani, S.Schulze, D.R.T.Zahn, *Optical Phonons in InAs and AlAs Quantum Dot Structures*, Appl. Surf. Sci. 234, p. 45 (2004).
14. A.G.Milekhin, A.I.Nikiforov, **M.Yu.Ladanov**, O.P. Pchelyakov, S.Schulze, and D.R.T.Zahn: *Resonant Raman Scattering by strained and relaxed Ge Quantum Dots*, Phys. of Solid State 46(1) 92 (2004).
15. A.G.Milekhin, A.I.Toropov, A.K.Bakarov, **M.Yu.Ladanov**, G. Zanelatto, J.C.Galzerani, S.Schulze and D.R.T.Zahn, *Infrared Reflectivity and Raman Spectra of InAs/AlAs*

Periodical Structures with InAs and AlAs Quantum Dots, 11th International Symposium “NANOSTRUCTURES: Physics and Technology”, St Petersburg, Russia, 23–28, June 2003.

16. A.G.Milekhin, A.I.Nikiforov, O.P. Pchelyakov, D.Tenne, **M.Ladanov**, S.Schulze, D.R.T.Zahn, *Resonant Raman scattering by strained and relaxed Ge quantum dots*, Mat. Res. Soc. Symp. Proc. Vol. 737, E13.7.1, 2003