

## *Curriculum Vitae*

### **Slava (Vyacheslav) V. Rotkin**

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#### **Education:**

- 4/94 - 4/97 **Ph.D.** Ioffe Institute, St. Petersburg, Russia. Advisor Prof. Robert A. Suris.  
Ph.D. degree in physics and mathematics received from Ioffe Institute.  
Thesis "Modeling of the electronic structure, formation and interaction processes in nanoscale carbon-based clusters".
- 2/96 - 6/96 Course on the Modern Statistical Physics: Random Systems, University of Oslo, Norway.
- 9/90 - 3/93 Extramural Language courses, St. Petersburg Electro-technical University, Russia.
- 9/90 - 12/93 Extramural courses taken at Ioffe Institute, St. Petersburg, "Band structure of semiconductors".
- 9/90 - 12/93 Extramural courses taken at St. Petersburg Technical University "Optics of semiconductors", "Group theory application in condensed matter", "Condensed Matter Physics".
- 8/86 - 2/94 **M.Sc. (Honors)** Electro-technical University, St. Petersburg, Russia.  
Major: Optoelectronics, Electronics. Graduated with Honors.  
Thesis "C<sub>60</sub> molecule spherical shell quantum well model". Advisor Prof. Robert A. Suris.

#### **Research experience (12 years):**

- 8/04 - present Assistant Professor, Physics Department, Lehigh University, Bethlehem PA, USA.
- 3/03 - 8/04 Visiting Research Assistant Professor, Beckman Institute, UIUC, Urbana IL, USA.
- 3/00 - 3/03 Beckman Fellow (Postdoctoral Research Associate), Beckman Institute, UIUC, Urbana IL, USA.
- 12/99 - 3/00 Visiting Research Associate, Beckman Institute, UIUC, Urbana IL, USA.
- 2/99 - 8/04 Research Staff Fellow, Laboratory of Theoretical Bases of Microelectronics of Solid State Electronics Division of Ioffe Physico-technical Institute, St. Petersburg, Russia.
- 4/95 - 2/99 Junior Staff Fellow, Laboratory of Theoretical Bases of Microelectronics of Solid State Electronics Division of Ioffe Physico-technical Institute, St. Petersburg, Russia.
- 4/94 - 4/95 Graduate Research Assistant, Laboratory of Theoretical Bases of Microelectronics of Solid State Electronics Division of Ioffe Physico-technical Institute, St. Petersburg, Russia.

#### **Teaching experience (10+ years teaching at University, undergraduate and graduate students):**

- Spring 2006 Director, Instructor: PHY 396: "Quantum Mechanics I", (core graduate course), Physics Department, Lehigh University, Bethlehem PA, USA.
- Fall 2006 Instructor: PHY 021: "Introductory Physics II", (core undergraduate course), Physics Department, Lehigh University, Bethlehem PA, USA.
- Spring 2005 Instructor: EMC 115: "Engineering materials and electronics", "Novel approaches in molecular electronics", (Guest Lecture), ECE/MSE Department, Lehigh University, Bethlehem PA, USA.
- Spring 2005 Instructor: PHY 372: Special Seminar "Topics of Biophysics", "Physics of non-physics systems: Water and ion channels, natural and artificial" (Guest Lecture), Physics Department, Lehigh University, Bethlehem PA, USA.
- Spring 2005 Director, Instructor: PHY 396: "Quantum Mechanics I", (core graduate course), Physics Department, Lehigh University, Bethlehem PA, USA.
- Fall 2005 Director, Instructor: PHY 472: "Physics and applications of nanoscale 1D systems", (graduate course), Physics Department, Lehigh University, Bethlehem PA, USA. (Part of MATPaC web-taught curriculum for Lehigh, Penn State, Drexel, Carnegie Mellon and University of Pennsylvania).

- Spring 2004 Director, Instructor: PHY 396: "Quantum Mechanics I", (core graduate course), Physics Department, Lehigh University, Bethlehem PA, USA.
- Fall 2004 Instructor: PHY 011: "Introductory Physics", (core undergraduate course), Physics Department, Lehigh University, Bethlehem PA, USA.
- Spring 2004 Guest Lecturer, Mini-course on "Green's function approach in transport on nanostructures" within Graduate course of Prof. K. Hess: ECE 497 "Quantum Mechanics for Nanoscience and Nanotechnology". ECE, UIUC.
- Spring 2003 Co-Director, Instructor, Graduate course: ECE 497. ECE, UIUC.  
Developed a new course for Graduate Students (credits 4/4).  
"Novel Carbon-Based NEMS, Quantum and Electronic Devices".
- Fall 2002 Co-Instructor, ECE 435 - "Theory of Semiconductors and Semiconductor Devices". ECE, UIUC.
- 5/2002 Instructor, Mini-course "Introduction to Carbon Nanotubes" at 2002 Summer School on Computational Material Science (5/21-5/31/02). "Computational Approaches for Simulation of Electron Devices and MEMS", Beckman Institute, UIUC.
- 5/99 - 3/00 Associate Professor, Optoelectronics department of St. Petersburg Electro-technical University, St. Petersburg, Russia (Course Director; lectures: 4 hours/week, exams, supervising for Term papers).
- 2/94 -5/99 Assistant Professor, Optoelectronics department of St. Petersburg Electro-technical University, St. Petersburg, Russia (Course Director; lectures: 4 hours/week, exams, supervising for Term papers).
- 1994-present Advisor/Co-Advisor for Ph.D. (5), M.Sc. (6), B.Sc. (3), Undergraduate (2) and high-school (4) students.
- 1996 Developed a course for Graduate (B.Sc.) Students "Fundamentals of quantum field solid state theory".
- 1994 Developed a course for Undergraduate (Senior) Students "Modern methods of the solid state theory".
- 1995-98 Volunteer supervisor for scientific research practice of High-School students.
- 1994-96 Moderator of Theoretical Student Seminar at Ioffe Institute.

#### **Other experience/service:**

- since 2004 Faculty Member of Physics Department of Lehigh University, Bethlehem, PA.
- 2003 – 2004 Panel and proposal reviewer for the National Science Foundation: Nanoscale Science and Engineering Centers (NSF: NSEC).
- 2005 Proposal reviewer for the Kentucky Science and Engineering Foundation (KSEF).
- 2005 Proposal reviewer for the Petroleum Research Fund of the American Chemical Society (PRF-G).
- 2005 Proposal reviewer for the Netherlands Foundation for Fundamental Research on Matter (FOM).
- since 2002 Acting as a proposal reviewer for the U.S. Civilian Research and Development Foundation (CRDF), a proposal reviewer for the National Science Foundation: Division of Materials Research (NSF: DMR).
- 2001 – present Member of Program Committee for the ECS Meetings at Fullerene and Nanotube Division of the ECS.
- 2004 Member of Program Committee for Nanomodeling Meetings at SPIE.
- 2003 – 2005 Co-author of the textbook "Quantum Mechanics for Nanoscience and Nanotechnology"; with K. Hess.
- 2003 – 2005 Editor of the book "Applied Physics of Carbon Nanotubes: Fundamentals of Theory, Optics and Transport Devices" in Nanoscience and Nanotechnology Series, Springer Verlag GmbH & Co. KG.
- 2002 Acted as a Section Editor for the "Handbook of Nanoscience, Engineering and Technology", CRC Press.
- 2002 Guest Editor of the special volume of the International Journal of Nanoscience; Publ.: World Scientific Publishing Co.Pte.Ltd., Singapore.
- since 1994 Acting as a referee for 25 journals: Physical Review Letters, Applied Physics Letters, Europhysics Letters, Nano Letters, Chemical Physics Letters, Physical Review B, Journal of Applied Physics, Physical Review E, Physical Review A, Journal of Physics: Condensed Matter, New Journal of Physics, Advanced Materials, Nanotechnology, Solid State Electronics, Chemistry of Materials, Semiconductors, Physics of the Solid State, The International Journal on Multiscale Computational Engineering, Modeling and Simulation in Materials Science and Engineering, Journal of the Mechanics and Physics of Solids, Journal of Computational Electronics, Journal of Micromechanics and Microengineering, Technical Physics, International Journal of Nanoscience, IEE Proceedings: Circuits, Devices and Systems.
- 2000 – 2003 Secretary of the Nanotube Seminar series at Beckman Institute, UIUC.
- 1994 – 1999 Faculty Member of Optoelectronics department of St. Petersburg Electro-technical University, Russia.
- 1996 – 1999 Member of the Scientific Youth Society Council of St. Petersburg, Russia.
- 1995 – 1999 Chair of the Scientific Youth Council of Ioffe Institute, St. Petersburg, Russia.
- 1998 Editor of the workshop Proceedings volume; co-editor of the abstract book; Publ.: Ioffe Institute, St. Petersburg, Russia.
- 1997 Technical co-editing of the Proceedings volume: (special) issue of journal Solid State

Physics – St. Petersburg, Russia.  
1996 Co-editing of the workshop Proceedings volume; Publ.: Elsevier Science Ltd., England.  
1991 – 1993 Member of the Scientific Council of St. Petersburg Electro-technical University, St. Petersburg, Russia.

### **Professional Membership**

since 2005 member of SPIE  
since 2004 member of MRS  
since 2003 member of IEEE  
since 2001 member of APS  
since 2000 member of the ECS  
1993-1999 member of Russian Physical Science Society  
1994-1999 member of the Scientific Youth Council of Ioffe Institute, St. Petersburg, Russia

### **Participation in the organizing of international and regional conferences**

- The 209th Meeting of The Electrochemical Society, Inc. (May 7-12, 2006, Denver, Colorado). Symposium N4 - Carbon Nanotubes and Nanostructures: Applications and Devices (Symposium Co-Chair).
- Optics and Photonics 2006 SPIE Meeting (13–17 August 2006, San Diego, California USA), Symposium Nanomodeling II (NP210) (Section Program Chair).
- The 207th Meeting of The Electrochemical Society, Inc. (May 15-20, 2005, Quebec City, Canada). Symposium P5 - Carbon Nanotubes and Nanostructures: Fundamental Properties and Processes (Symposium Co-Chair).
- The 205th Meeting of The Electrochemical Society, Inc. (May 9-14, 2004, San Antonio, Texas). Symposium M5 - Nanotubes and DNAs: Novel Materials and Molecular Devices (Symposium Co-Chair).
- The 203rd Meeting of The Electrochemical Society, Inc. (April 27 - May 2, 2003, Paris, France). Symposium R5 - Nanotubes, Nanoscale Materials and Molecular Devices (Symposium Co-Chair).
- The 201st Meeting of The Electrochemical Society, Inc. (May 12-17, 2002, Philadelphia PA). Symposium V5 - Nanotubes, Nanoscale Materials and Devices (Symposium Co-Chair).
- 2nd Resulting Workshop on Physics and Astronomy for St. Petersburg Young Scientist Grant winners, February 15-17 1999, St. Petersburg, Russia. (Workshop Chair).
- International workshop on optoelectronics, 4-6.11.1998, St. Petersburg, Russia. (Secretary of organizing committee).
- Resulting Workshop on Physics and Astronomy for St. Petersburg Young Scientist Grant winners, February 16-17 1998, St. Petersburg, Russia. (Workshop Chair).
- 23rd International Symposium on Compound Semiconductors, September 23-27 1996, Astoria Hotel, St. Petersburg, Russia (Program committee member).
- 1st International WinterSchool on Physics of Semiconductors'96 on the base of Ioffe PTI, Zelenogorsk, St. Petersburg, March 2-4, 1996, Russia (Program Committee member).

### **Awards and Honors:**

#### **(most important honors)**

2006 Who's Who of Emerging Leaders, Marquis Who's Who, New Providence  
2006 AcademicKeys Who's Who in Sciences Higher Education  
2005, 2006 Who's Who in Science and Engineering, Marquis Who's Who, New Providence  
2004-present Frank J. Feigl Junior Faculty Scholar  
2000 Beckman Fellowship (4 awards per year, internationally solicited).  
1995-97 Soros Graduate student grant (three times running). International Science Foundation/Open Society Fund.  
1995 Grant of Russian Government Support Program for Leading Scientific Schools of Russia (top 0.1%).  
1995 Royal Swedish Academy of Sciences fellowship  
under the research program of International Center for Fundamental Physics in Moscow.  
1994-96 President and Government Grant for Young Scientists of Russia (top 0.1%).  
1992 Individual Grant of APS.

#### **(other awards)**

2000 Best speaker of the year, Theoretical seminar at Ioffe Institute.  
1998 Best Young Scientist Paper (1st Award) at 3rd International Winterschool on Physics of Semiconductors.  
1997 Best Young Scientist Paper Award at the 3rd International Workshop on Fullerenes and Atomic Clusters.  
1997 Best Young Scientist Paper (1st Award) at the scientific competition of Ioffe Institute.

- 1997 Best Young Scientist Paper (3rd Award) at Annual St. Petersburg competition in the Natural Sciences.
- 1997 Ioffe Institute Prize award.
- 1997 Best Young Scientist paper (1st Award) at 2nd International Winterschool on Physics of Semiconductors.
- 1997 Soros Graduate student grant no. a97-2424. International Science Foundation/Open Society Fund.
- 1996 Soros Graduate student grant no. a96-2558. International Science Foundation/Open Society Fund.
- 1995 Soros Graduate student grant no. a1128-x. International Science Foundation/Open Society Fund.
- 1993 Fellowship of Foundation for Intellectual Collaboration.
- 1992 Fellowship of Regional Center for Science and Technical Expertise (top 1%).
- 1991 Fellowship of Scientific Council of St. Petersburg Electro-technical University (top 0.1%).
- 1986 High-School Award at All-Union conference on Physics (top 0.01%).

**Research and other grants:  
(recent grants)**

- 2006- 2008 NASA-GSFC cooperative agreement, grant "Processing Methods and Fundamental Properties of Carbon Nanotube Materials" (Co-PI for sub-award "High-Resolution Characterization of Carbon Nanotube Materials"). \$360,000.
- 2006- 2007 DoD-Army Research Laboratory, grant "Army Optics V - Physics of Light-to-Electric-Signal Conversion in Carbon Nanotubes: Novel Route for Making Nanoscale Optoelectronic Devices" (PI). \$129,000.
- 2006- 2010 National Science Foundation, program "Nanoscale Interdisciplinary Research Teams", grant # CMMI-0609050, "NIRT: Solution-Based Dispersion, Sorting, and Placement of Carbon Nanotubes - GOALI" (Co-PI). \$1,250,000.
- 2004 Faculty Research Grant from Office of Research and Sponsored Programs at Lehigh University. \$2,550.
- 2004 NSF travel stipend to attend the Workshop on Opportunities in Materials Theory
- 2002- 2004 National Science Foundation, program "Nanoscale: Exploratory Research", grant # ECS-0210495, "NER: Investigation of carbon nanotube nano-optics" (Co-PI). \$87,250.
- 2001- 2005 Department of Energy, Nanoscale Science Engineering and Technology Initiative, grant # DE-FG02-01ER45932, "A New Class of Nanostructured Materials: Graphite Polyhedral Crystals" (Co-PI). \$425,000.
- 2001 - 2003 CRI grant of UIUC, "Manipulation of Carbon Nanotubes for Integrated Nanoelectromechanical Systems (NEMS)" (Co-PI). \$136,500.
- 2001 - 2003 Arnold and Mabel Beckman Fellowship (Sol-PI):  
(personal fellowship \$48,000/year, travel and equipment funds \$25,000, start-up funds \$20,000)

**(grant history)**

- 2000 RFBR grant no. 00-15-96812 "Support of Russian Leading Scientific Schools" "Theory of solid state micro- and nanostructures and related optoelectronic devices" (Co-PI)
- 1999 - 2001 RFBR grant no. 99-02-18170 (Co-PI).
- 1998 Travel Grant of Electrochemical Society: Fullerene Group (Sol-PI).
- 1999 Grant no. 98059 of RGP "Fullerenes and Atomic Clusters" (Co-PI).
- 1998 RFBR grant no. 98-02-26120 "Scientific Conference Support" (Co-PI).
- 1998 Travel Grant RFBR no. 98-02-26693 (Sol-PI).
- 1998 - 2000 Grant no.K0416 of Russian Federal Program "Recuperating of scientific Olympiads, competitions, scientific youth schools" of Federal program "Integration of science and high school" (Co-PI).
- 1998 Grant no. 98062 of RGP "Fullerenes and Atomic Clusters" (Co-PI).
- 1997 Travel Grant of RFBR (Sol-PI).
- 1997 Travel Grant of RGP "Fullerenes and Atomic Clusters" (Sol-PI).
- 1996 - 2000 RFBR grant no. 96-15-96348 "Support of Russian Leading Scientific Schools" (Co-PI).
- 1996 - 1998 RFBR grant no. 96-02-17952 (Co-PI).
- 1996 - 1998 RFBR grant no. 96-02-17926 (Co-PI).
- 1996 INTAS grant no. 93-2492-ext under the research program of International Center for Fundamental Physics in Moscow (Co-PI).
- 1996 NORDITA grant for participation in the work of the School on the Modern Statistical Physics: Random Systems (Sol-PI).
- 1996 Travel Grant of ISF (Sol-PI).
- 1995 - 1996 INTAS grant no. 94-1172 (Co-PI).

1995 - 1996 Grant no. 94014 of RGP "Fullerenes and Atomic Clusters" (Co-PI).  
 1994 - 1995 RFBR grant no. 93-02-3199 (Co-PI).  
 1994 Grant no. 94014 of IP "Fullerenes and Atomic Clusters" (Co-PI).  
 1994 Grant no. 94019 of IP "Fullerenes and Atomic Clusters" (PI).  
 1994 Grant no. 12 of the Program of Foundation for Intellectual  
 Collaboration "Fullerenes and Atomic Clusters" (Co-PI).

### Collaborators and Co-Editors (recent and past)

M.Sc. and Ph.D. advisor R.A. Suris (Ioffe, St. Petersburg, Russia),  
 I. Adesida (UIUC, US), N. Aluru (UIUC, US), M. Barsoum (Drexel University, US), A. Bezryadin (UIUC, US),  
 P.S. Carney (UIUC, US), M. Dyakonov (Ioffe, St. Petersburg, Russia), Yu. Gogotsi (Drexel University, US), A. Jagota  
 (Lehigh, US), K. Hess (UIUC, US), C. Kiely (Lehigh, US), J.-P. LeBurton (UIUC, US), I. Levitsky (URI, US), J.W.  
 Lyding (UIUC, US), J.S. Moore (UIUC, US), U. Ravaioli (UIUC, US), J.A. Rogers (UIUC, US), H. Ruda (University of  
 Toronto, Canada), A. Shik (University of Toronto, Canada), M. Shim (UIUC, US), M. Strano (UIUC, US), S. Subramoney  
 (DuPont, US), M. Radosavljevich (Intel Corporation), I. Zharov (University of Utah, US), E. Zubarev (Rice University,  
 US).

### Advising/Co-Advising Student/Visitors

#### Post-Doctoral Fellows

11/06 - 5/07 Dr. Igor Kolobov, Lehigh University.  
 6/05 - 5/06 Dr. Vadim Puller, Lehigh University.

#### Visitors

7/06 - 9/06 Mr. Alexey Tsukanov, Visiting Scholar at Lehigh University.  
 3/05 - 5/05 Dr. Alexey G. Petrov, Visiting Scholar at Lehigh University.  
 1/05 - 2/05 Prof. Vladimir Nazarov, Visiting Scholar at Lehigh University.  
 12/02 - 6/03 Dr. Ioan Sturzu, Visiting Scholar at Beckman Institute.  
 3/02 - 4/02 Dr. Alexey G. Petrov, Visiting Professor at Beckman Institute.  
 7/01 - 9/01 Mr. Kirill Bulashevich, Visiting Scholar at Beckman Institute.

### Graduate Students

#### Ph.D.

9/05 - present Ms. Stacy Snyder  
 9/03 - 7/04 Mr. Salvador Barraza-Lopes Co-Advisor Prof. K. Hess  
 9/02 - 7/04 Ms. Yan Li Co-Advisor Prof. U. Ravaioli  
 9/99 - 6/00 Mr. Stanley F. Kharlapenko  
 9/99 - 4/00 Mr. Vyacheslav I. Almyashev

#### Master Degree

9/03 - 5/04 M.Sc. degree Arnaud Robert-Peillard Co-Advisor Prof. K. Hess  
 9/01 - 5/02 M.Sc. degree Mark Dequesnes Co-Advisor Prof. N.R.Aluru  
 7/00 - 6/02 M.Sc. degree (with Honors) Kirill A. Bulashevich Co-Advisor Prof. R.A.Suris  
 9/97 - 6/99 M.Sc. degree (with Honors) Stanley F. Kharlapenko  
 6/96 - 6/98 M.Sc. degree (with Honors) Alexey Bogdanov  
 6/96 - 6/98 M.Sc. degree (with Honors) Igor Yu. Soloviev

#### Summer Students

6/06 - 8/06 Summer research Brett McGeehan  
 5/05 - 8/05 Summer research Stacy Snyder

### Undergraduate Students

5/06 - 8/06 REU Manav Malhotra  
 Spring 06 Undergraduate student research Amanda Simens Co-Advisor Prof. C.Kiley  
 Fall 05 Undergraduate student research Amanda Simens Co-Advisor Prof. C.Kiley  
 5/05 - 8/05 REU Brian Holder  
 9/97 - 6/00 B.Sc. degree (with Honors) Kirill A. Bulashevich  
 2/96 - 4/98 B.Sc. degree (with Honors) Leonid A. Pavlov  
 5/94 - 6/96 B.Sc. degree (with Honors) Igor Yu. Soloviev

**High School Students** (at St. Petersburg School "Liceum FTS", St. Petersburg, Russia)

1/97 - 1/98

Ilya Barygin

1/96 - 12/97

Kirill A. Bulashevich

1/97 - 12/97

Maksim Korytov

1/95 - 12/96

Olga Rykova

Revised on 11/11/2006

**Publications: Peer Reviewed (47), Proc Volume (35); (250+ citations)**

**PR. (journals, books and other peer reviewed publications)**

1. Slava V. Rotkin, Alexander Shik, "Electrostatics of nanowires and nanotubes: Application for field-effect devices", in the Special Issue *Nanowires and Nanotubes*, Editor: Peter Burke, Publ.: World Scientific, Singapore. International Journal of High Speed Electronics and Systems, in press, 2006.
2. Vadim Puller, and Slava V. Rotkin, "Helicity and Broken Symmetry in DNA-Nanotube Hybrids", Europhysics Letters submitted, (2006).
3. Qing Cao, Ming-Gang Xia, Coskun Kocabas, Moonsub Shim, John Rogers, and Slava V. Rotkin, "Gate Capacitance Coupling of Single-walled Nanotube Thin-film Transistors", Applied Physics Letters, vol. \*\*, submitted, (2006).
4. Slava V. Rotkin, Narayan R. Aluru, and Karl Hess, "Multiscale Theory and Modeling of Carbon Nanotube Nano-Electromechanical Systems", in *Handbook of Nanoscience, Engineering and Technology (2<sup>nd</sup> Edition)*", Eds.: W. Goddard, D. Brenner, S. Lyshevski, G.J. Iafrate; Taylor and Francis-CRC Press, (in preparation).
5. Stacy E. Snyder, and Slava V. Rotkin, "Polarization component of the cohesion energy in the complexes of a single-wall carbon nanotube and a DNA", JETP Letters 84 (6), 348-351, (Pis'ma v ZhETF 84 (6), 411-415), (2006).
6. Alexey G. Petrov, Slava V. Rotkin, "Hot carrier energy relaxation in single-wall carbon nanotubes via surface optical phonons of the substrate" 84 (3), 156-160 (Pis'ma v ZhETF 84 (3), 185-189), (2006).
- (\*) Slava V. Rotkin, Y. Gogotsi and Ben Grosser, "The molecular dynamics simulation for the zipping of the graphene edge ", Cover image for the *Nanomaterials Handbook*, Y. Gogotsi, Ed.; CRC-Taylor&Francis (2006).
7. Yan Li, Umberto Ravaioli, and Slava V. Rotkin, "Metal-Semiconductor Transition and Fermi Velocity Renormalization in Metallic Carbon Nanotubes", Phys. Rev. B vol. 73 (3), 035415--1-10 (2006).
8. L. Rotkina, S. Oh, J.N. Eckstein, S.V. Rotkin, "Logarithmic behavior of the conductivity of electron-beam deposited granular Pt/C nanowires", Phys. Rev. B vol. 72 (23), 233407--1-4 (15 Dec 2005).
9. Salvador Barraza-Lopez, Slava V. Rotkin, Yan Li, and Karl Hess, "Conductance Modulation of Metallic Nanotubes by Remote Charged Rings", Europhysics Letters 69 (6), 1003-1009 (2005).
10. Slava V. Rotkin, "From Quantum Models to Novel Effects to New Applications: Theory of Nanotube Devices", in *Applied Physics of Nanotubes: Fundamentals of Theory, Optics and Transport Devices*", Nanoscience and Nanotechnology Series, Ser.Ed.: Ph. Avouris, Springer Verlag GmbH & Co. KG (2005).
- (\*) Slava V. Rotkin, and Ben Grosser, "Single-Wall Nanotube METFET inverter: organic molecules wrap around a metallic tube channel and modify it to a semiconductor while the second tube is used for gating", Cover background image for the book *Applied Physics of Nanotubes: Fundamentals of Theory, Optics and Transport Devices*", Nanoscience and Nanotechnology Series, Ser.Ed.: Ph. Avouris, Springer Verlag GmbH & Co. KG (2005).
11. Yan Li, Deyu Lu, Klaus Schulten, Umberto Ravaioli, and Slava V. Rotkin, "Screening of Water Dipoles Inside Finite-Length Armchair Carbon Nanotubes", Journal of Computational Electronics, vol. 4, 161-165 (2005).
12. Arnaud Robert-Peillard, Slava V. Rotkin, "Modeling Hysteresis Phenomena in Nanotube Field-Effect Transistors", IEEE Transactions on Nanotechnology, vol. 4 (2), 284-288 (2005).
13. Deyu Lu, Yan Li, Slava V. Rotkin, Umberto Ravaioli, and Klaus Schulten, "Finite-Size Effect and Wall Polarization in a Carbon Nanotube Channel", Nano Letters, 4 (12), 2383-2387 (2004).
14. Yan Li, Slava V. Rotkin, and Umberto Ravaioli, "Metal-Semiconductor Transition in Armchair Carbon Nanotubes by Symmetry Breaking", Applied Physics Letters, vol. 85 (18), 4178-4180 (Nov 2004).
15. Alexey G. Petrov, Slava V. Rotkin, "Transport in Nanotubes: Effect of Remote Impurity Scattering", Phys. Rev. B vol. 70 (3), 035408-1-10, 15 Jul 2004.
16. (**8 citations**) Slava V. Rotkin, and Karl Hess, "Possibility of a Metallic Field-Effect Transistor", Applied Physics Letters vol. 84 (16), p.3139-3141, 19 April 2004.
- (\*) Slava V. Rotkin, Ben Grosser, and Karl Hess, "Setup of an armchair SWNT METFET using the STM tip as a modulation gate", Cover image for Applied Physics Letters vol. 84 (16), 19 April 2004.
17. Slava V. Rotkin, Harry Ruda, Alexander Shik, "Field-effect transistor structures with a quasi-1D channel", International Journal of Nanoscience vol. 3 (1/2), 161-170, Feb 2004.
18. Kirill A. Bulashevich, Slava V. Rotkin, Robert A. Suris, "Excitons in Single Wall Carbon Nanotubes", International Journal of Nanoscience vol. 2 (6), pp. 521-526, Dec 2003.
19. (**8 citations**) Slava V. Rotkin, Harry Ruda, Alexander Shik, "Universal Description of Channel Conductivity for Nanotube and Nanowire Transistors", Applied Physics Letters vol. 83, No. 8, 1623-1625, 25 August 2003.
20. Alexey G. Petrov, Slava V. Rotkin, "Breaking of Nanotube Symmetry by Substrate Polarization", Nano Letters vol. 3, No.6, 701-705, 2003.

21. **(32 citations)** Yan Li, Slava V. Rotkin, Umberto Ravaioli, "Electronic response and bandstructure modulation of carbon nanotubes in a transverse electrical field", *Nano Letters* vol. 3, No. 2, 183-187, 2003.
22. Slava V. Rotkin, "Theory of Nanotube Nanodevices", in *Nanostructured Materials and Coatings for Biomedical and Sensor Applications*, (Proceedings of the NATO Advanced Research Workshop; August 4-8, 2002, Kiev, Ukraine). Editors: Y.G. Gogotsi and Irina V. Uvarova. Kluwer Academic Publishers: Dordrecht-Boston-London. NATO Science Series: II. Mathematics, Physics and Chemistry – Vol. 102, pp. 257-277, 2003.
23. **(7 citations)** Slava V. Rotkin, Vaishali Shrivastava, Kirill A. Bulashevich, and Narayan R. Aluru, "Atomistic Capacitance of a Nanotube Electromechanical Device", in the Special Issue "*Recent Advances in Carbon Nanotubes, Nanoscale Materials and Devices*", Editors: S.V. Rotkin and S. Subramoney. Published by: World Scientific, Singapore. *International Journal of Nanoscience* vol. 1, No. 3/4, 337-346, 2002.
24. Slava V. Rotkin, Ilya Zharov, "Nanotube Light-Controlled Electronic Switch", in the Special Issue "*Recent Advances in Carbon Nanotubes, Nanoscale Materials and Devices*", Editors: S.V. Rotkin and S. Subramoney. Published by: World Scientific, Singapore. *International Journal of Nanoscience* vol. 1, No. 3/4, 347-355, 2002.
25. Narayan R. Aluru, Jean-Pierre Leburton, William McMahon, Umberto Ravaioli, Slava V. Rotkin, Martin Staedele, Trudy van der Straaten, Blair R. Tuttle and Karl Hess, "Modeling Electronics on the Nanoscale", (pp. 11-1 – 11-33), in "*Handbook of Nanoscience, Engineering and Technology*", Eds.: W. Goddard, D. Brenner, S. Lyshevski, G.J. Iafrate; CRC Press, 2002.
26. **(11 citations)** Kirill A. Bulashevich, Slava V. Rotkin, "Nanotube Devices: Microscopic Model", *JETP Letters* vol. 75 (4), 205-209, (Pis'ma v ZhETF vol. 75 (4), pp. 239-244), 22 February 2002.
27. **(18 citations)** Slava V. Rotkin, Yuri Gogotsi, "Analysis of non-planar graphitic structures: from arched edge planes of graphite crystals to nanotubes", *Materials Research Innovations*, vol. 5 (5), 191-200, 2002.
28. Marc Dequesnes, Slava V. Rotkin, Narayan R. Aluru, "Parameterization of continuum theories for single wall carbon nanotube switches by molecular dynamics simulations", *Journal of Computational Electronics* 1 (3), 313-316, 2002.
29. Slava V. Rotkin, Karl Hess, "Many-body terms in van der Waals cohesion energy of nanotubes", *Journal of Computational Electronics* 1 (3), 323-326, 2002.
30. **(84+16 citations)** Marc Dequesnes, Slava V. Rotkin, Narayan R. Aluru, "Calculation of pull-in voltages for carbon nanotube-based nanoelectromechanical switches", *Nanotechnology* 13, 120-131, 22 January 2002.
31. Slava V. Rotkin, "SWNT Nucleation: Energetics of Zipping-Edge Mechanism", in *Nanotubes, Fullerenes, Nanostructured and Disordered Carbon*, (Symposium. Mater. Res. Soc.), edited by John Robertson, Thomas A. Friedmann, David B. Geohegan, David E. Luzzi and Rodney S. Ruoff, (2001). Vol. 675, pp. W 2.9.1-W 2.9.5 Warrendale, PA, USA.
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52. Slava V. Rotkin, "Formalism of Dielectric Function and Depolarization in SWNT: Application to Nano-Optical Switches and Probes", in *Nanomodeling*, Akhlesh Lakhtakia, Sergey A. Maksimenko, Editors; Proceedings of SPIE, vol. 5509, 145-159, 2004.
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55. Yan Li, Slava V. Rotkin, Umberto Ravaioli, "Influence of External Electrical Fields on Electronic Response and Bandstructure of Carbon Nanotubes", Proceedings of Third IEEE conference on Nanotechnology, 12-14 August 2003. Moscone Convention Center, San-Francisco, CA. pp. 1-4.
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72. Slava V. Rotkin, Robert A. Suris "The bond passivation model for carbon nanoparticle growth", *International Symposium "Nanostructures: Physics and Technology"*, St. Petersburg, Russia, pp. 335-338, 22-26 June 1998.
73. V.V. Rotkin, R.A. Suris, "Electron structure modeling and investigation of interaction processes for carbon-based nanoclusters", *Ioffe Institute Prize Winners*, pp.26-33, St. Petersburg, Russia, 1998 (Preprint of Ioffe Institute).
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80. V.V. Rotkin, R.A. Suris, " $C_{60}$  electron collective excitation nature", *Fullerenes. Recent Advances in the Chemistry and Physics of Fullerenes and Related Materials. Volume III*. Editors: R.S. Ruoff and K.M. Kadish. Published by: Electrochemical Society, Pennington, NJ, 1996, PV 96-10, pp.940-959.

81. (**7 citations**) V.V. Rotkin, R.A. Suris, "Carbon cluster formation energy", Fullerenes. Recent Advances in the Chemistry and Physics of Fullerenes and Related Materials. Volume II. Editors: R.S. Ruoff and K.M. Kadish. Published by: Electrochemical Society, Pennington, NJ, 1995, PV 95-10, pp. 1263-1270.
82. V.V. Rotkin, R.A. Suris, "The coupled plasma oscillations on two conducting spheres joined", Proc.of International Symposium "Nanostructures: Physics and Technology-95", pp.210-213, St. Petersburg, Russia, 26-30 June 1995.

**Participation in conferences:**

Invited (12) and oral (42) presentations.

Invited talks at Universities, seminars and small workshops (58).

Poster presentations (30). Web presentations (6).

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**Participation in conferences (50+):**

Invited presentations (12)

1. Slava V. Rotkin, "Nanotube Band Gap Engineering for Electronics and Optoelectronics" (keynote), the ION Workshop, NASA Goddard Space Flight Center, Greenbelt, MD, 23-26 January 2006.
2. Slava V. Rotkin, "SWNT screening and exciton binding energy" (invited), the SPIE Optics East 2005 Symposium, Session: Nanosensing: Materials and Devices II, Boston, MA, 23-26 October 2005.
3. Slava V. Rotkin, "Transport in nanotube and nanowire field-effect devices" (invited), Second Conference on Nanoscale Devices and System Integration, Houston, Texas, April 4-6, 2005.
4. Slava V. Rotkin, "Mesoscopic band gap engineering in SWNTs: How the symmetry effects electronic properties" (invited), the March Meeting of the American Physical Society, March 21-25, 2005, Los Angeles, CA, USA.
5. Slava V. Rotkin, "Nano-Optical Switches and Probes with Single-Wall Nanotubes" (keynote), SPIE International Symposium: Optical Science and Technology, SPIE's 49th Annual Meeting, Session AM221: Nanomodeling. 2 - 6 August 2004. Denver, Colorado USA.
6. Slava V. Rotkin, "Nano-Switches with Single-Wall Nanotubes" (keynote), The 205th Meeting of the Electrochemical Society; "Nanotechnology - Session A2". San Antonio, Texas. May 9-14, 2004.
7. S.V. Rotkin, "Nanotube Materials Properties for Novel Devices" (invited) International Conference on the Science and Application of Nanotubes-03, Seoul, Korea, July 7-11 2003.
8. Slava V. Rotkin, "Atomistic and model description of nanotube electromechanical devices" (invited), the March Meeting of the American Physical Society, March 3-7, 2003 in Austin, Texas, USA.
9. Slava V. Rotkin, "From MEMS, via NEMS to Mol-EMS" (invited), ARO NEMS Workshop, Gleacher Center of University of Chicago, November 14, 2002, Chicago, IL.
10. Slava V. Rotkin, "Analytical Models for Nanotube Device Simulation" (invited), NATO Advanced Research Workshop "Nanostructured Materials and Coatings for Biomedical and Sensor Applications", August 4-8, 2002, Kiev, Ukraine.
11. V.V. Rotkin, "Qualitative methods in the theory of carbon nanoclusters: Plasmon and polariton excitations of C<sub>60</sub>" (invited), International Workshop on Optoelectronics, St. Petersburg, Russia, November 4-6, 1998.
12. V.V. Rotkin, "Fullerenes - Novel nanoscale matter" (invited), The 48th Lectures after A.S.Popov, SPbSEEU, St. Peterburg, Russia, March 20, 1997.

Oral presentations (42)

1. Slava V. Rotkin, Stacy E. Snyder, Alexey Tsukanov, Vadim I. Puller, Eugene A. Grachev, "Doping without dopants : Symmetry breaking and band structure engineering in nanotube-DNA hybrids", 12th Advanced Heterostructure Workshop, Dec 3-8, 2006, Big Island, HW.
2. Vadim Puller, and Slava Rotkin, "Metal-insulator Transition in DNA-functionalized Single-wall Carbon Nanotubes", 2006 MRS Meeting, San-Francisco, CA, April 17-21, 2006.
3. Vadim Puller, and Slava Rotkin, "Band structure modulation in carbon nanotube-metal junction", 2006 APS March Meeting, March 13-17, 2006; Baltimore, MD.
4. Slava Rotkin, and Alexey G. Petrov "Nanotube exciton spectrum: Triangular quantum well model", 2006 APS March Meeting, March 13-17, 2006; Baltimore, MD.

5. Slava V. Rotkin, "Many-Body Effects in the Optics of Single-Wall Nanotubes", the Biophotonics Workshop, the Center of Optical Technologies, Lehigh University, PA, May 19 – 20, 2005.
6. Deyu Lu, Yan Li, Slava Rotkin, Umberto Ravaioli, Klaus Schulten , "Modeling the Polarizability of Carbon Nanotube Molecular Channels", 49th Biophysical Society Annual Meeting, Long Beach, California, February 12-16, 2005.
7. Slava V. Rotkin, Karl Hess, "Metal-Semiconductor Transition in Armchair Nanotubes: Possibilities for Metallic FET", The 46th Electronic Materials Conference of TMS, Notre Dame University, Notre Dame, Indiana, June 23 – 25, 2004.
8. Slava V. Rotkin, "Engineering of NT electronic properties by symmetry breaking: Application for molecular devices", 2004 MRS Spring Meeting, Session T: Molecular Electronics. April 12-16, 2004. Moscone West, San Francisco, CA.
9. Slava V. Rotkin, Karl Hess, "Principles of Metallic Field Effect Transistor (METFET)", 2004 Nanotechnology Conference and Trade Show: Nanotech 2004, *Nanoscale Device Modeling* Session, March 7-11, 2004, Boston Sheraton Hotel and Copley Convention Center, Boston, Massachusetts, USA.
10. Yan Li, Slava Rotkin, Umberto Ravaioli, "Band Gap of Armchair Carbon Nanotubes: Mirror Symmetry Breaking", 2004 APS March Meeting, March 22-26, 2004, Palais des Congres de Montreal, Montreal, Quebec, Canada.
11. Slava Rotkin, Salvador Barraza-Lopez, Karl Hess, "Effects of Localized Electrostatic Fields on Electron Transport in Armchair Single-Walled Carbon Nanotubes", 2004 APS March Meeting, March 22-26, 2004, Palais des Congres de Montreal, Montreal, Quebec, Canada.
12. Deyu Lu, Yan Li, Slava Rotkin, Umberto Ravaioli, Klaus Schulten , "Electronic properties of finite length armchair nanotubes", 2004 APS March Meeting, March 22-26, 2004, Palais des Congres de Montreal, Montreal, Quebec, Canada.
13. S. V. Rotkin and K. Hess, "A Metallic Field Effect Transistor Using Carbon Nanotubes (METFET)", Sixth International Conference on New Phenomena in Mesoscopic Systems and Fourth International Conference on Surfaces and Interfaces of Mesoscopic Devices. December 1-5, 2003. Maui, Hawaii, USA.
14. Slava V. Rotkin, "Theory of Nanotube Opto-electromechanical Device", Third IEEE conference on Nanotechnology, 12-14 August 2003. Moscone Convention Center, San-Francisco, CA. PA-7.
15. Yan Li, Slava V. Rotkin, Umberto Ravaioli, "Influence of External Electrical Fields on Electronic Response and Bandstructure of Carbon Nanotubes", Third IEEE conference on Nanotechnology, 12-14 August 2003. Moscone Convention Center, San-Francisco, CA. TA-3.
16. Slava V. Rotkin, Harry Ruda, Alexander Shik, "Universal Theoretical Description and Numerical Modeling of Nanotube and Nanowire Transistors ", 24<sup>th</sup> Meeting of CAIMS/SCMAI, Soc. of Industrial and Applied Mathematics; Montreal, QC, Canada, 16–20, June 2003.
17. Yan Li, Slava V. Rotkin, Umberto Ravaioli, "Electronic response and bandstructure modulation of carbon nanotubes in a transverse electrical field", the March Meeting of the American Physical Society, March 3-7, 2003 in Austin, Texas, USA.
18. Slava V. Rotkin, "Nanotube Molecular Devices for NEMS", the March Meeting of the American Physical Society, March 3-7, 2003 in Austin, Texas, USA.
19. S. V. Rotkin and K. Hess, "Simulation of Nanotube Devices: Quantum Mechanical and Classical Views", Advanced Heterostructure Workshop, December 1 - 6, 2002. Hapuna Beach Prince Hotel, Hawaii, USA.
20. Slava V. Rotkin, "The Basis of Device Theory for Nanotubes"; International Conference on Computational Engineering and Sciences (ICES'02), Silver Legacy Resort, Reno, Nevada, 31 July-2 August 2002.
21. Slava V. Rotkin, Ilya Zharov, "Conductivity of a SWNT with a Positive Charge at the Surface"; The 201st Centennial Meeting of the Electrochemical Society; "Fullerenes, Nanotubes and Carbon Nanoclusters - Session II", May 12-16, 2002, Philadelphia, PA.
22. Slava V. Rotkin, Kirill A. Bulashevich, Narayan R. Aluru, "Atomistic Models for Nanotube Device Electrostatics"; The 201st Centennial Meeting of the Electrochemical Society; "Fullerenes, Nanotubes and Carbon Nanoclusters - Session II", May 12-16, 2002, Philadelphia, PA.
23. Slava V. Rotkin, "Analytical Results in Nanoscale EMS Modeling"; The 201st Centennial Meeting of the Electrochemical Society; "Microfabricated Systems and MEMS V", May 12-16, 2002, Philadelphia, PA.
24. Slava V. Rotkin, "Simulation of Nanotube Devices"; The 201st Centennial Meeting of the Electrochemical Society; "Nanotechnology", May 12-16, 2002, Philadelphia, PA.
25. Slava V. Rotkin, Kirill A. Bulashevich, K. Hess, "Toward Nanotube Device Modeling", the March Meeting of the APS, March 18-22, 2002, Indianapolis, IN.
26. Slava V. Rotkin, Karl Hess, "On Computation of Many-Body Correction to van der Waals Interaction for Nanotubes", 8th International Workshop on Computational Electronics, Beckman Institute, UIUC, Urbana, IL, USA, October 15-18, 2001.

27. Slava V. Rotkin, "Nanocluster Optical Gap: Transition from Size Quantization to Lamb-Like Depolarization Shift"; The 199th Meeting of the Electrochemical Society; "Metal and Semiconductor Nanoclusters". Washington, D.C. March 25-30, 2001.
28. Slava V. Rotkin, "Carbon Bubbling: Pentagon Energetics for Graphene Shell Formation"; The 199th Meeting of the Electrochemical Society; "Fullerenes, Nanotubes and Carbon Nanoclusters - Session I". Washington, D.C. March 25-30, 2001.
29. S.V. Rotkin, "On energetics of NT nucleation through zipping of carbon layer edge"; The 197th Meeting of the Electrochemical Society; "Fullerenes, Nanotubes, and Carbon Nanoclusters: Session II". Toronto, Ontario, Canada, May 14-18, 2000.
30. Slava V. Rotkin, "Surface plasmons as origin of depolarisation in spherical QDs"; The 197th Meeting of the Electrochemical Society; "Nanostructured Materials in Electrochemistry and Photoelectrochemistry". Toronto, Ontario, Canada, May 14-18, 2000.
31. Slava V. Rotkin, "Giant Lamb-like level shift in spherical QD", APS March Meeting 2001, Session Q33 - Spectroscopy of Quantum Dots. Washington State Convention Center, Seattle, WA. March 12 - 16, 2001.
32. Slava V. Rotkin, "The Anomalous Level Shift Due to Local Electric Modes of the Confined System", Symposium U1, "Advanced Luminescent Materials and Quantum Confinement", The 1999 Joint International Meeting of The Electrochemical Society in Honolulu, October 17-22, 1999.
33. Slava V. Rotkin, Stan F. Kharlapenko, "The Symmetric Carbon Cluster Approximation for TBA Spectra of Fullerenes", Symposium O1, "Fullerenes Science and Technology", The 1999 Joint International Meeting of The Electrochemical Society in Honolulu, October 17-22, 1999.
34. V.V. Rotkin, R.A. Suris "Energetics of carbon cluster with passivated bonds", International Conference "Physics at the Turn of the 21st Century", St. Petersburg, Russia, September 28– October 2, 1998.
35. V.V. Rotkin, "Steps of nanocluster formation: Energetical predictions for catalytic mechanism", The 193rd Meeting of the Electrochemical Society; Fullerenes: Chemistry, Physics And New Directions XI. San Diego, California, May 3-8, 1998.
36. V.V. Rotkin, A. Bogdanov, "Nanotube nucleation: Energetical predictions", The 193rd Meeting of the Electrochemical Society; Fullerenes: Chemistry, Physics And New Directions XI. San Diego, California, May 3-8, 1998.
37. V.V. Rotkin, "Symmetry approach in the many-body-problem: Electronic structure of small clusters", The Third International Winterschool on the Physics of Semiconductors, Zelenogorsk, St. Peterburg, Russia, February 27 - March 4 1998.
38. V.V. Rotkin, "The collective excitations in some fullerene cluster systems", The Second International Winterschool on the Physics of Semiconductors, Zelenogorsk, St. Peterburg, Russia, February 28 - March 5.1997.
39. V.V. Rotkin, R.A. Suris, "Theoretical prediction of the roentgen polariton in the polymerized fullerenes", The International Workshop on Soft X-Rays in 21-st Century, Midway, Utah, USA, January 8-11, 1997.
40. V.V. Rotkin, R.A. Suris, "Calculation of the nonlinear optics properties of carbon nanoscale clusters", Russian Conference of Physics of Semiconductors '96, Zelenogorsk, St. Petersburg, February 26 - March 01 1996.
41. V.V. Rotkin, R.A. Suris, "Energy of carbon cluster curved surface", 2nd International Workshop on Fullerenes and Atomic Clucters, St. Petersburg, Russia, June 19-24, 1995
42. V.V. Rotkin, "Curved in sphere quantum well as C<sub>60</sub> molecule model", International Conference of Physics Students-94, St. Petersburg, Russia, August 15-21, 1994.
43. V.V. Rotkin, R.A. Suris, "The quantum mechanical description of C<sub>60</sub> molecule collective electronic excitations", 1st International Workshop on Fullerenes and Atomic Clusters, St. Petersburg, Russia, October 4-9, 1993.

Invited talks at Universities, seminars and small workshops (58):

1. Slava V. Rotkin, "Basic Physics of DNA-Nanotube Wrapping: Electronic Structure Calculations", Physical Science Seminar Series, IBM T.J. Watson Research Center, Yorktown Heights, NY November 17, 2006.
2. Slava V. Rotkin, "Electrical and Bio-chemical Tuning of Nanotube Band Gaps for Electronics and Optoelectronics Applications", RF and Electronics Department, U.S. Army Research Laboratory, Adelphi, MD, March 16, 2006.
3. Slava V. Rotkin, "Gapping Nanotubes: When the Symmetry is a Subject of Device Engineering", Seminar of Department of Physics and Engineering Physics, Stevens Institute of Technology, Hoboken, NJ, September 29, 2005.
4. Slava V. Rotkin, "Condensed Matter Physics of Non-Condensed Matter Systems", Soft Matter Seminar Series, Physics Department, Arizona State University, Tempe, AZ, February 16, 2005.
5. Slava V. Rotkin, "Mesoscopic band gap engineering in single-wall nanotubes", Materials Science Department Colloquium, Lehigh University, November 9, 2004.

6. Slava V. Rotkin, "Optics with Nanotubes", Physics Department Brown Bag Seminar Series, Lehigh University, October 19, 2004.
7. Slava V. Rotkin, "Physics of Nanoscale Systems at the Wet-Dry Interface", Physics Department Colloquium, Lehigh University, September 30, 2004.
8. Slava V. Rotkin, "Multiscale Modeling of Molecular Devices: Enabling Tool for Nanotechnology", Seminar of the Electrical and Computer Engineering Department, UC, Davis, April 19 2004.
9. Slava V. Rotkin, "Introduction into Carbon-based Nanoscale and Molecular Materials", Nanotechnology Special Seminar Series, Physics Department, Lehigh University, February 27, 2004.
10. Slava V. Rotkin, "Physics of Nanoscale and Molecular Systems: Classical and Quantum Views", Physics Department Colloquium, Lehigh University, February 26, 2004.
11. Slava V. Rotkin, "Multiscale Modeling in Nanotechnology of Molecular Devices", Drexel University, Seminar of the Electrical and Computer Engineering Department, Lebow Engineering Center (January 23, 2004).
12. Slava V. Rotkin, "Nanotube devices with multiple functionality: Prospects for integration", Drexel University, IGERT Seminar, Lebow Engineering Center (December 11, 2003).
13. Slava V. Rotkin, "Novel Carbon Materials for Nano-Technology: Multiscale Simulation", Iowa State University, Seminar of the College of Engineering, (March 28, 2003).
14. Slava V. Rotkin, "Atomistic Simulations of Novel Carbon Materials for Nano-Technology", Drexel University, Seminar of the College of Engineering, (February 10, 2003).
15. Lolita Rotkina, Slava V. Rotkin, "Applied Physics of Nanotube: Experiment and Theory", The Beckman Institute Director's Seminar, (1/30/03), Beckman Institute, UIUC, Urbana, IL.
16. Slava V. Rotkin, "Prospects of Nanotube Molecular Devices for Nanotechnology of This Century", Beckman Fellow Seminar, December 19, 2002, Beckman Institute, UIUC, Urbana, IL.
17. Slava V. Rotkin, "Novel Carbon Materials and NT Devices for Nano-Bio Technology", Computational Nanotechnology Seminar Series, (11/15/02), ECE, Purdue University, West Lafayette, IN.
18. Slava V. Rotkin, Lolita Rotkina, "Nanotube Electronic Devices for Nano/Bio/Chem Technology", seminar at ECE, UIC (11/13/02), Chicago, IL.
19. Slava V. Rotkin, "Simulation of Nanotube Devices: Continuum vs. Quantum Terms", seminar at the Center for Quantum Devices, Northwestern University (11/12/02), Chicago, IL.
20. Slava V. Rotkin, "Simulation of Scrolling at the Nanoscale", 2002 Summer School on Computational Material Science: "Computational Approaches for Simulation of Electron Devices and MEMS", Beckman Institute, UIUC (5/31/02), Urbana, IL.
21. Slava V. Rotkin, "Nanotubes and Nanodevices: Introduction, Theory and Simulation", 2002 Summer School on Computational Material Science: "Computational Approaches for Simulation of Electron Devices and MEMS", Beckman Institute, UIUC (5/31/02), Urbana, IL.
22. Slava V. Rotkin, "Quantum Capacitance of Nanotube Devices", ITR Seminar, March 28, 2002, Beckman Institute, UIUC, Urbana, IL.
23. Slava V. Rotkin, "Nanotube Devices: Simulations and Promises for Technology", Micro and Nanotechnology Seminar, March 27, 2002, Coordinated Science Laboratory, UIUC, Urbana, IL.
24. Slava V. Rotkin, Narayan R. Aluru, Karl Hess, "Simulation of Nanotube Based electromechanical Systems", February 21, 2002, the ECAN (Energenius Centre for Advanced Nanotechnology) Distinguished Lecturer Series, ECAN, University of Toronto, Toronto, ON, Canada.
25. Slava V. Rotkin, "Simulation of Nanotube Devices", Beckman Fellow Seminar, February 6, 2002, Beckman Institute, UIUC, Urbana, IL.
26. Slava V. Rotkin, "Methods of continuum modeling for Graphitic Systems: Scrolling at nanoscale", October 1, 2001, Seminar Series of Department of Materials Engineering of Drexel University, Drexel University (Philadelphia, PA).
27. Slava V. Rotkin, "Continual Energetics of Graphitic Systems: Scrolling at Nanoscale", September 11, 2001, Seminar Series on Physics of Nanotubes, Electronic Properties and Device Applications, Beckman Institute, UIUC, Urbana, IL.
28. Slava V. Rotkin, Karl Hess, "Dispersion Forces: Application to Ion Channels", June 11, 2001, discussion meeting of CEG, Beckman Institute, UIUC, Urbana, IL.
29. Slava V. Rotkin, "On the Dispersion Forces: van der Waals Interaction and Casimir Energy, QED Entropy", May 10, 2001, CEG discussion meeting, Beckman Institute, UIUC, Urbana, IL.
30. Slava V. Rotkin, "Nanotubes: Electronic structure and Applications", September 13, 2000. Nanohour (Molecular and Electronic Nanostructures seminar), Beckman Institute, UIUC, Urbana, IL.
31. Slava V. Rotkin, "Spherical 0d-systems: depolarisation as the origin of giant electron energy level shift", June 29, 2000. Theoretical seminar (Laboratory of Semiconductors Theory), Ioffe Institute, St.Petersburg, Russia.

32. Slava V. Rotkin, "Formation of Nanotubes: General problems and new nucleation mechanism", June 27, 2000. Electronics theory seminar (Laboratory of Theoretical Bases of Microelectronics), Ioffe Institute, St.Petersburg, Russia.
33. Slava V. Rotkin, "Energetics of carbon clusters", May 19, 2000. Physics Department. Quantum Optics and Condensed Matter Seminar. University of Toronto, Canada.
34. Slava V. Rotkin, "Depolarization Level Shift in Spherical Quantum Dot", January 20, 2000. Computational Electronics Group seminar, Beckman Institute, UIUC, Urbana, IL.
35. Slava V. Rotkin, "How classical is quantum physics: Lamb-like shift in Quantum Dots", December 7, 1999. Electronic Structure/Condensed Matter Theory Group seminar, Dept. of Physics, UIUC, Urbana, IL.
  
36. V.V. Rotkin, "Qualitative methods in the theory of carbon nanoclusters", International Workshop on Optoelectronics, November 5, 1998, St. Petersburg, Russia.
37. Slava V. Rotkin, "On some exactly solvable models for  $Y_n$  clusters", December 4, 1998. Electronics Theory seminar (Laboratory of Theoretical Bases of Microelectronics), Ioffe Institute, St.Petersburg, Russia.
38. V.V. Rotkin, R.A. Suris, "Ostensive phenomenological model for energetics of carbon nanoclusters with curved surface", Ioffe Institute Prize competition, St. Petersburg, Russia, November 3, 1998.
39. Slava V. Rotkin, "Plasmons in carbon cluster solids", September 24, 1998. Electronics Theory seminar (Laboratory of Theoretical Bases of Microelectronics), Ioffe Institute, St.Petersburg, Russia.
40. Slava V. Rotkin, " $C_{60}$  based electronics: Prospects", May 22, 1998. Electronics Theory seminar (Laboratory of Theoretical Bases of Microelectronics), Ioffe Institute, St.Petersburg, Russia.
41. V.V. Rotkin, R.A. Suris, "Phenomenological energetics of formation of different carbon nanoclusters", seminar of laboratory of Nanocluster Physics, September 14, 1998. Ioffe Institute, St.Petersburg, Russia.
42. S.V. Rotkin, R.A. Suris, "Electron structure modelling and investigation of interaction processes for carbon-based nanoclusters", Ioffe Institute Prize competition, St. Petersburg, Russia, November 12, 1997.
43. V.V. Rotkin, "On (carbon particle nucleated) water cluster formation theory", Low-Dimensional seminar at Ioffe Institute, 01.10.97. Ioffe Institute, St.Petersburg, Russia.
44. V.V. Rotkin, "The Van-der-Waals forces between clusters and liquid medium", Theoretical seminar (Laboratory of Semiconductors Theory), 13.2.97. Ioffe Institute, St.Petersburg, Russia.
45. V.V. Rotkin, "Coherent state technique: Application to the anharmonic oscillator", Student's Solid State Theory seminar at Ioffe Institute, 7.02.97. Ioffe Institute, St.Petersburg, Russia.
46. V.V. Rotkin, R.A. Suris, "Roentgen polariton effect in  $C_{60}$  lattice", Low-Dimensional seminar at Ioffe Institute, 01.02.97. Ioffe Institute, St.Petersburg, Russia.
47. V.V. Rotkin, R.A. Suris, "Electron energy losses in the fullerenes", Electronics Theory seminar (Laboratory of Theoretical Bases of Microelectronics), 30.01.97. Ioffe Institute, St.Petersburg, Russia.
48. V.V. Rotkin, "Coherent state technique: "Pedestrian level" exposition", Student's Solid State Theory seminar at Ioffe Institute, 25.12.96. Ioffe Institute, St.Petersburg, Russia.
49. V.V. Rotkin, R.A. Suris, "Polariton excitations of the fullerene two-dimensional lattice", Theoretical seminar (Laboratory of Semiconductors Theory), 30.03.96. Ioffe Institute, St.Petersburg, Russia.
50. V.V. Rotkin, R.A. Suris, "Geometry and thermodynamics of non-traditional fullerenes", Low-Dimensional seminar at Ioffe Institute, 23.03.96. Ioffe Institute, St.Petersburg, Russia.
51. V.V. Rotkin, "Fullerenes: Energy consideration and Plasma Oscillations in Soft X-Ray region", Solid state theory seminar, University of Oslo, 22.02.96. Oslo, Norway.
52. V.V. Rotkin, R.A. Suris, "The Coulomb mixing of plasmons on the fullerene molecule", Theoretical seminar (Laboratory of Semiconductors Theory), 09.10.95. Ioffe Institute, St.Petersburg, Russia.
53. V.V. Rotkin, R.A. Suris, "The composed plasmon in  $C_{119}$  molecule", Low-Dimensional seminar at Ioffe Institute, 11.09.95. Ioffe Institute, St.Petersburg, Russia.
54. V.V. Rotkin, R.A. Suris, "The problem of Coulomb operator in the representation of the joint angular momentums of the charge density waves on the sphere", Electronics Theory seminar (Laboratory of Theoretical Bases of Microelectronics), 15.06.95. Ioffe Institute, St.Petersburg, Russia.
55. V.V. Rotkin, "Hueckel Method and Ruthan technique: Application to calculation of the curved graphite", Student's Solid State Theory seminar at Ioffe Institute, 05.06.95. Ioffe Institute, St.Petersburg, Russia.
56. V.V. Rotkin, R.A. Suris, "The prediction for the faced ball-like fullerene", Theoretical seminar (Laboratory of Semiconductors Theory), 30.03.95. Ioffe Institute, St.Petersburg, Russia.
57. V.V. Rotkin, R.A. Suris, "Energy of the curved graphite surface: phenomenological approach", Low-Dimensional seminar at Ioffe Institute, 20.03.95. Ioffe Institute, St.Petersburg, Russia.

58. Slava V. Rotkin, "Fullerenes: a review of symmetry, crystal structure, electronic properties", Ioffe "Grand" theoretical seminar, February 23, 1992. Ioffe Institute, St.Petersburg, Russia.

Poster presentations (30):

1. Stacy E. Snyder, and Slava Rotkin, "Is a DNA-Wrapped Metallic Nanotube Still Metallic?", 2006 APS March Meeting, March 13–17, 2006; Baltimore, MD.
2. Slava V. Rotkin, "Nanotube Opto-electromechanical Devices", IBM Day at UIUC, Monday, September 22, 2003. Coordinated Science Laboratory, UIUC, Urbana, IL.
3. Slava V. Rotkin, "Theory of Nanotube Opto-electromechanical Device", Third IEEE Conference on Nanotechnology; San Francisco, CA, August 12-14, 2003.
4. Kirill A. Bulashevich, Slava V. Rotkin, Robert A. Suris, "Excitons in Single Wall Carbon Nanotubes", 11<sup>th</sup> International Symposium "Nanostructures: Physics and Technology"; St Petersburg, Russia, 23–28, June 2003.
5. Slava V. Rotkin, Harry Ruda, Alexander Shik, "Field-effect transistor structures with a quasi-1D channel", 11<sup>th</sup> International Symposium "Nanostructures: Physics and Technology"; St Petersburg, Russia, 23–28, June 2003.
6. Slava V. Rotkin, "Nanotubes in Education", Beckman Fellows Symposium (May 1-3, 2003), Beckman Institute, UIUC, Urbana, IL.
7. Ioan Sturzu, Slava V. Rotkin, "Quantum mechanical study of nanotube devices", Colloquium "Communication and Integration in Nanomaterials", September 30 – October 2, 2002. Transylvania University, Romania.
8. Svetlana Dimovski, Yuri Gogotsi, Slava V. Rotkin, "Experimental and Theoretical Study of Graphitic Polyhedral Nano- and Micro-Structures", International Conference on the Science and Application of Nanotubes, Boston College, Boston, USA, July 6-11, 2002.
9. S.V. Rotkin, K. Hess, "Theory Of Nanotube Devices", International Conference on the Science and Application of Nanotubes, Boston College, Boston, USA, July 6-11, 2002.
10. L.G. Rotkina, S.V. Rotkin, P.M. Albrecht, D. Lapan, W. Ye, J.W. Lyding, "Experimental Study Of Metal-Nanotube Contact Properties", International Conference on the Science and Application of Nanotubes, Boston College, Boston, USA, July 6-11, 2002.
11. Svetlana Dimovski, Slava V. Rotkin, Yuri Gogotsi, "Experimental and Theoretical Study of Graphitic Nano- and Micro-Structures"; The 201st Centennial Meeting of the Electrochemical Society; May 12-16, 2002, Philadelphia, PA.
12. M. Dequesnes, S.V. Rotkin and N.R. Aluru, "Simulation of Carbon Nanotube-based Nanoelectromechanical Switches", Ninth Foresight Conference on Molecular Nanotechnology – Nanotech 2002 International Conference on Computational Nanoscience and Nanotechnology, April 22-25, 2002, San Juan Marriot Resort & Stellaris Casino, San Juan, Puerto Rico, USA.
13. S.V. Rotkin, I. Zharov, K. Hess, "Zipping of graphene edge results in [10,10] tube formation", XV International Winterschools on Electronic Properties of Novel Materials (IWEPM 2001) "MOLECULAR NANOSTRUCTURES", Hotel Sonnalp, Kirchberg /Tirol, Austria. March 3 - 10, 2001.
14. Slava V. Rotkin, "Chirality dependent SWNT formation energy". ACS Meeting, San Diego, April 1-5, 2001. Symposium "New Chemistry of Fullerenes and Nanotubes"(I&EC Division).
15. Slava V. Rotkin, "On depolarisation in 0D systems: Lamb-like level shift", 8th International Symposium "Nanostructures: Physics and Technology", St. Petersburg, Russia, June 19-23, 2000.
16. Slava V. Rotkin, Robert A. Suris, Stanley F. Kharlapenko, "The energy of the carbon-flake nanocluster: Pentagon-pentagon distance optimization", International Symposium "Nanostructures: Physics and Technology", St. Petersburg, Russia, June 14-18, 1999.
17. S.F. Kharlapenko, V.V. Rotkin, I.Yu. Solov'ev, "Frenkel exciton in icosahedral group lattice", International Conference "Physics at the Turn of the 21st Century", St. Petersburg, Russia, September 28 - October 2, 1998.
18. Slava V. Rotkin, "Frenkel Excitations Of  $C_N$  ( $N=12,60$ ) Clusters", EMRS-98-Spring Meeting, Strasbourg, France, June 16-19, 1998.
19. Slava V. Rotkin, "Polymer- $C_{60}$  exciton mixing", EMRS-98-Spring Meeting, Strasbourg, France, June 16-19, 1998.
20. Slava V. Rotkin "Frenkel-exciton solution of the Coulomb problem on the finite triangular lattice", International workshop on Computational Approach to Electronic Correlations in Solids, Dresden, Germany, May 25 - 29, 1998
21. Slava V. Rotkin, Robert A. Suris, "The bond passivation model for carbon nanoparticle growth", International Symposium "Nanostructures: Physics and Technology", St. Petersburg, Russia, June 22-26, 1998.

22. S.F. Harlapenko, V.V. Rotkin, "Frenkel-Exciton Hamiltonian eigensystem for the  $C_{60}$  finite electronic system: theoretical approach", The 193rd Meeting of the Electrochemical Society; Fullerenes: Chemistry, New Directions XI. May 3-8, 1998; San Diego, California.
23. V.V. Rotkin, R.A. Suris, "Energetics of the fullerene clusters", MRS-98-Spring Meeting, San-Francisco, CA, USA; April 13-17, 1998.
24. V.V. Rotkin, "Selforganization of the fullerene clusters", MRS-98-Spring Meeting, San-Francisco, CA, USA; April 13-17, 1998.
25. A.G. Petrov, V.V. Rotkin, I.Yu. Soloviev, "Resonance structure of the electron continuum of the fullerene cluster", The 2nd Russian-German Workshop on Synchrotron Radiation Research in Atomic, Molecular and Material Science, St. Petersburg, Russia, June 28-July 3, 1997.
26. V.V. Rotkin, R.A. Suris, "Plasmon-Frenkel-exciton in the clustered solid", The 3rd International Workshop on Fullerenes and Atomic Clucters-97, St. Petersburg, Russia, June 30-July 4, 1997.
27. V.V. Rotkin, "Selforganization of the fullerene complexes on solution", International Symposium "Nanostructures: Physics and Technology", St. Petersburg, Russia, June 23-27, 1997.
28. V.V. Rotkin, R.A. Suris, " $C_{60}$  spectrum within the free electron model", The Second International Symposium on the Theory of Atomic and Molecular Clusters, The Abbey on Lake Geneva Resort, Fontana WI, USA, September 15-20, 1996.
29. V.V. Rotkin, R.A. Suris, "Analysis of closing of fullerene spherical cluster", IV Int. Conference on Advanced Materials, Cancun, Mexico, August 27 – September 1, 1995.
30. V.V. Rotkin, R.A. Suris, "The coupled plasma oscillations on two conducting spheres joined", International Symposium "Nanostructures: Physics and Technology-95", St. Petersburg, Russia, June 26-30, 1995.

Web presentations (6):

1. "The Scheme of the Nucleation of [6,6] CNT via Zipping Mechanism". Image of the Week - 15 February 2001. (Image Courtesy: Slava V. Rotkin, Ilya Zharov). Imaging Technology Group, Beckman Institute, and the University of Illinois. <http://www.itg.uiuc.edu/exhibits/iotw/2001-02-15/>
2. "MD Simulation Analysis of Non-planar Graphitic Structures". Image of the Week - 30 August 2001. (Image Courtesy: Slava Rotkin, Y. Gogotsi, Ben Grosser, Janet Sinn-Hanlon). Imaging Technology Group, Beckman Institute, and the University of Illinois. <http://www.itg.uiuc.edu/exhibits/iotw/2001-08-30/>
3. "Cover for the Handbook of Nanoscience, Engineering and Technology". Image of the Week - 11 July 2002. (Image Courtesy: Cover design by B. Grosser, ITG, Data by K. Hess, M. Gupta, and S.V. Rotkin). Imaging Technology Group, Beckman Institute, and the University of Illinois. <http://www.itg.uiuc.edu/exhibits/iotw/2002-07-11/>
4. "Carbon Nanotube Optical Probe". Image of the Week – 9 September 2003. (Image Courtesy: Slava V. Rotkin, Paul S. Carney, Benjamin Grosser). Imaging Technology Group, Beckman Institute, and the University of Illinois. <http://www.itg.uiuc.edu/exhibits/iotw/2003-09-09/>
5. "Possibility of a Metallic Nanotube Field-Effect Transistor". Image of the Week - 27 April 2004. (Image Courtesy: Slava V. Rotkin, Benjamin Grosser). Imaging Technology Group, Beckman Institute, and the University of Illinois. <http://www.itg.uiuc.edu/exhibits/iotw/2004-04-27/>
6. Cover for "Applied Physics of Nanotubes". Image of the Week - 31 January 2006. (Image Courtesy: Slava V. Rotkin, Lehigh University, and Benjamin Grosser. Imaging Technology Group, Beckman Institute, and the University of Illinois.) <http://www.itg.uiuc.edu/exhibits/iotw/2006-01-31/>

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