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LIST OF SCIENTIFIC PUBLICATIONS

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1. PATENTS

Applications granted

46. "Method and system for bonding a semiconductor chip onto a carrier using micro-pins", US Pat. **7,326,637** (with Sangmin Lee and Michael Gurvitch; filed July 23, 2003, issued Feb 5, 2008)
45. "Intersubband semiconductor lasers with enhanced subband depopulation rate", US Pat. **7,310,361** (with Gregory Belenky, Mitra Dutta, Mikhail Kisin, and Michael Stroschio; filed September 29, 2004, issued December 18, 2007)
44. "Semiconductor scintillation high-energy radiation detector", US Pat. **7,265,354** (with Alexander Kastalsky and Boris Spivak; filed June 6, 2005, issued Sept 4, 2007)
43. "Method and system for bonding a semiconductor chip onto a carrier using micro-pins", US Pat. **7,064,432** (with Sangmin Lee and Michael Gurvitch; filed July 26, 2001, issued June 20, 2006)
42. "Method and apparatus for detecting radiation", US Pat. **6,944,407** (optical communication link, divisional of US Pat. **6,528,801**, with Vera Gorfinkel and Mikhail Gouzman, filed December 18, 2002, issued Sept 13, 2005)
41. "Method and apparatus for detecting radiation", US Pat. **6,934,030** (X-ray, divisional of US Pat. **6,528,801**, with Vera Gorfinkel and Mikhail Gouzman, filed December 18, 2002, issued Aug 23, 2005)
40. "Semiconductor laser with reduced temperature sensitivity," US Pat. **6,870,178** (with Levon Asryan, filed February 2002, issued March 22, 2005)
39. "Intersubband semiconductor lasers with enhanced subband depopulation rate", US Pat. **6,819,696** (with Gregory Belenky, Mitra Dutta, Mikhail Kisin, and Michael Stroschio, filed September 2001, issued November 16, 2004)
38. "Method and apparatus for detecting radiation", US Pat. **6,771,367** (electroluminescence, divisional of US Pat. **6,528,801**, with Vera Gorfinkel and Mikhail Gouzman; filed November 98, issued August 3, 2004)
37. "Method and apparatus for detecting radiation", US Pat. **6,760,109** (interacting electromagnetic radiation, divisional of US Pat. **6,528,801**, with Vera Gorfinkel and Mikhail Gouzman; filed November 98, issued July 6, 2004)
36. "Method and apparatus for detecting radiation", US Pat. **6,759,247** (chemiluminescence, divisional of US Pat. **6,528,801**, with Vera Gorfinkel and Mikhail Gouzman; filed November 98, issued July 6, 2004)
35. "Method and apparatus for detecting radiation", US Pat. **6,528,801** (with Vera Gorfinkel and Mikhail Gouzman; filed November 98, issued Mar 4, 2003)
34. "Method and apparatus for DNA sequencing " (network sequencer), US Pat. **6,497,804** (with Vera Gorfinkel and Mikhail Gouzman; filed December 99, issued Dec 24, 2002)
33. "Method and apparatus for compression of DNA samples for DNA sequencing", US Pat. **6,475,362** (with Vera Gorfinkel and Mikhail Gouzman; filed December 99, issued Nov 5, 2002)
32. "Multicapillary bundle for electrophoresis and detection for DNA", US Pat. **6,464,852** (with Vera Gorfinkel and Mikhail Gouzman; filed December 99, issued Oct 15, 2002)
31. "Load sharing controller for optimizing resource utilization cost", US Pat. **6,370,560** (with with Tom Robertazzi and Saravut Charcranoon; Disclosure date 9/22/97, filed March 98, issued April 9, 2002)
30. "Fabrication Methods and Structured Materials for Photonic Devices", US Pat. **6,064,511** (with C. M. Fortmann, J. H. Coleman, and R. Tonucci; Disclosure date: Sep 96, filed March 1998, issued May 2000)
29. "Sensors for Detection and Spectroscopy", US Pat. **6,038,023** (with B. S. Carlson, V. B. Gorfinkel, M. I. Gouzman; Disclosure Date: Nov 1997, filed July 98, issued Mar 2000)

28. "Load Sharing Controller for Optimizing Monetary Cost", US Pat. **5,889,989** (with Tom Robertazzi and Jeeho Sohn; Disclosure 11/8/95, issued March 1999).
27. "Method and Apparatus for Identifying Fluorophores", US Pat. **5,784,157** (with V. B. Gorfinkel, filed November 21, 1995; issued July 1998).
26. "Metal oxide semiconductor transistors having a polysilicon gate electrode with nonuniform doping in source-drain direction", US Pat. **5,550,397** (with N. Lifshitz, filed February 1993; issued Aug 1996).
25. "Method of making an article comprising a semiconductor device", [*active packaging: a method for fabrication of thin-film semiconductor devices with aligned lithography on opposite sides of a thin film*] US Pat. **5,496,743** (filed December 1993, issued March 1996).
24. "Article comprising a bipolar transistor with a floating base", US Pat. **5,461,245** (with Z. S. Gribnikov, filed August 1994, issued October 1995).
23. "Unipolar Semiconductor Laser", US Pat. **5,457,709** (with F. Capasso et al., filed April 1994, issued October 1995).
22. "A heterojunction bipolar transistor with a specific graded base structure" (enhanced forward diffusion of minority carriers), US Pat. **5,329,144** (filed April 1993, issued July 1994).
21. "Semiconductor Devices Using Epitaxial Silicides on (111) Surfaces Etched in (100) Silicon Substrates", US Pat. **5,323,053** (with G. L. Miller, filed May 1992, refiled July 93, issued June 1994).
20. "Article that comprises a semiconductor laser, and method of operating the article" (dual modulation), US Pat. **5,311,526** (with V. B. Gorfinkel, filed February 1993, issued May 1994).
19. "Article Comprising a Real-Space Transfer Semiconductor Device and Method of Making the Article", US Pat. **5,309,003** (filed February 1992, issued May 1994)
18. "Article Comprising a "Ballistic" Heterojunction Bipolar Transistor", US Pat. **5,304,816** (with A. A. Grinberg, filed November 1992, issued April 1994).
17. "Article Comprising Means for Modulating the Optical Transparency of a Semiconductor Body, and Method of Operating the Article", US Pat. **5,300,789** (with V. B. Gorfinkel, filed December 1991, issued April 1994).
16. "Light emitting device", US Pat. **5,223,723** (filed October 1990, issued June 1993).
15. "Staircase bandgap photodetector using recombination", US Pat. **5,206,526** (with C.-T. Liu, filed May 1991, issued April 1993).
14. "Articles and Systems Comprising Optically Communicating Logic Elements Including an Electro-Optical Logic Element", US Pat. **5,146,078** (filed January 1991, issued September 1992).
13. "Vertical Cavity Semiconductor Laser with Lattice-Mismatched Mirror Stack", US Pat. **5,012,486** (with Y.-H. Xie, filed April 1990, issued April 1991).
12. "Vertical Semiconductor Laser with Lateral Electrode Contact to Reduce Resistive Power Loss", US Pat. **4,999,843** (with Y.-H. Xie, filed April 1990, issued March 1991).
11. "Logic Element and Article Comprising the Element", (the real space electron transfer device "NORAND") US Pat. **4,999,687** (with M. R. Pinto, filed April 1990, issued March 1991).
10. "Real Space Electron Transfer Device Using Hot Electron Injection", US Pat. **4,903,092** (with A. Kastalsky, filed 1983, issued 1990).
9. "Transistor Comprising a 2-Dimensional Carrier Gas Collector Situated between Emitter and Gate", US Pat. **4,860,064** (filed 1987, issued 1989).
8. "Transistor Having Voltage-Controlled Thermionic Emission", US Pat. **4,829,349** (with R. F. Kazarinov, filed 1983, issued 1989).

7. "Dislocation-Free Epitaxial Layer on a Lattice-Mismatched Porous or otherwise Submicron Patterned Single Crystal Substrate", US Pat. **4,806,996** (filed 1986, issued 1989).
6. "Method of Fabricating Non-Silicon Materials on Silicon Substrate Using an Alloy of Sn and Group IV Semiconductors", US Pat. **4,769,341** (filed 1986, issued 1988).
5. "Silicon Germanium Photodetector", US Pat. **4,725,870** (with J. C. Bean and T. P. Pearsall, filed 1985, issued 1988).
4. "Negative Transconductance Device", US Pat. **4,704,622** (with F. Capasso, filed 1985, issued 1987).
3. "Hot Electron Unipolar Transistor with Two-Dimensional Degenerate Electron Gas Base with Continuously Graded Composition Compound Emitter", US Pat. **4,691,215** (filed 1985, issued 1987).
2. "Germanium P-I-N Photodetector on Silicon Substrate", US Pat. **4,514,748** (with J. C. Bean and A. Kastalsky, filed 1983, issued 1985).
1. "Quantized Hall Effect Switching Device", US Pat. **4,488,164** (with R. F. Kazarinov, filed 1982, issued 1984).

Applications pending

- "Bolometric Sensor with High TCR and low resistivity", RF File R-8049, with Michael Gurvitch, Alexander Polyakov and Alexandr Shabalov; US Provisional Pat. Application Ser. No. 61/125,080 (filed 04/21/2008).
- "Large-Area PIN Diode with Reduced Capacitance", RF File R-8053, sole inventor; US Provisional Pat. Application Ser. No. 61/072,229 (filed 03/28/2008).
- "High-energy scintillation detector comprising multiple semiconductor slabs", with A. Kastalsky; US Pat. Application Ser. No. 11/703,805 (filed 02/08/2007).
- "Photonic waveguide device", RF File R-7822, with Arsen Subashiev (provisional application, No 60/683,682, filed May 23, 2005, Full application: "Photonic waveguide device for modal control", PCT filed May 23, 2006); Published Application Number: 20080095494
- "Semiconductor Laser Source with Electrically Tunable Emission Wavelength", NTD January 2001, RF File R-7479, with Gregory Belenky, John D. Bruno, Mikhail V. Kisin, Leon Shterengas, Sergey Suchalkin, and Richard L. Tober (provisional application, No 60/602,750, filed August 19, 2004); Published Application Number: 20060056466
- "Quantum cascade laser with widely tunable emission", RF File R-7616 (with M.V. Kisin; Application No. 10/775860) Full application filed February 10, 2004
- "Fiber-Optic Sensor for Measuring Level of Fluid", RF File R-7574 (with M. Gouzman and O. Semenov; Ser. No 10/412948) Provisional application filed (Collard and Roe) April, 2002; Full application April 14, 2003
- "Lateral Current Injection Laser", NTD January 2001, RF File R-7479, with G.Belenky and B. Lakhtman (provisional application, No 60/289,748, May 9 2001, PCT Ser. No 10/142,460, filed May 9, 2002)
- "Infrared Radiation Imager", RF File R-7510, NTD May 31, 2001, with M. Gurvitch and F. Chudnovskiy (provisional No. 60/295,898, June 2001, Full application filed June 5, 2002)

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- Serge Luryi, Jimmy Xu, Alex Zaslavsky, *Future Trends in Microelectronics: The Nano Millennium*, John Wiley & Sons, New York (2002) [408 pp., ISBN: 0-471-21247-4]
- Serge Luryi, Jimmy Xu, Alex Zaslavsky, *Future Trends in Microelectronics: The Nano, The Giga, and The Ultra*, Wiley-IEEE Press, New York (2004) [424 pp., ISBN: 0-471-48405-9]
- Anatoli Korkin, Evgeni Gusev, Jan K. Labanowski, and Serge Luryi, *Nanotechnology for Electronic Materials and Devices* (Nanostructure Science and Technology, Springer Verlag, Aug 2007) Hardcover [368 pp., 232 ill.] ISBN: 978-0-387-23349-9
- Serge Luryi, Jimmy Xu, Alex Zaslavsky, *Future Trends in Microelectronics: Up the Nano Creek*, (Wiley-IEEE Press, New York, May 2007) Hardcover [459 pp.] ISBN: 978-0-470-08146-4

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- 227. Serge Luryi and Arsen V. Subashiev, "Waveguiding power of photonic crystal slabs", *HAIT Journal of Science and Engineering A*, Vol. 5, Issues 1-2 (Israel Vagner Memorial Volume), pp. 189-204 (2008)
- 226. Boris Spivak and Serge Luryi, "Is there a linewidth theory for semiconductor lasers?", *HAIT Journal of Science and Engineering A*, Vol. 5, Issues 1-2 (Israel Vagner Memorial Volume), pp. 265-272 (2008).

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- 225. Serge Luryi, Wendy Tang, Nadia Lifshitz, Gerrit Wolf, Simona Doboli, Joseph A. Betz, Peter Maritato, and Yacov Shamash, "Entrepreneurship in Engineering Education", Proceedings of the 37th ASEE/IEEE *Frontiers in Education Conference*, T2-E pp. 10-15 (2007)
- 224. M.Gurvitch, S.Luryi, A.Polyakov, A.Shabalov, M.Dudley, G.Wang, S.Ge, and V.Yakovlev, "VO₂ films with strong semiconductor to metal phase transition prepared by the Precursor Oxidation Process (POP)", *Journal of Applied Physics* **102**, 033504, pp.1-13 (2007).
- 223. Arsen V. Subashiev and Serge Luryi, "Fluctuations of the partial filling factors in competitive RSA from binary mixtures," to appear in *Physical Review E* **75** (July 2007) [ArXiv: cond-mat/0704.1235].
- 222. S. Suchalkin, M. Kisin, S. Luryi, G. Belenky, F. J. Towner, J. D. Bruno, C. Monroy, R. Tober, "Wavelength Tuning of Interband Cascade Lasers Based on the Stark Effect," in *Future Trends in Microelectronics: Up the Nano Creek*, ed. by S. Luryi, J. M. Xu, and A. Zaslavsky, Wiley Interscience, Hoboken, New Jersey (2007) pp. 369-379.
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- 220. Serge Luryi and Alexander Zaslavsky, "Nonclassical Devices in SOI: Genuine or Copyright from III-V" (invited paper), *Solid State Electronics* **51**, pp. 212-218 (2007)

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202. M. Gouzman, N. Lifshitz, S. Luryi, O. Semyonov, D. Gavrilov, V. Kuzminskiy, "Excitation-emission fluorimeter based on linear interference filters", *Applied Optics* **43**, pp. 3066-3072 (2004)
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190. Levon V. Asryan and Serge Luryi, "Temperature insensitive semiconductor quantum-dot laser", *Solid State Electronics* **47**, pp. 205-212 (2003).
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4. INVITED TALKS AT CONFERENCES

69. "Semiconductor Scintillator for Gamma Radiation Detection Based on the Burstein Shift, *Photonics West*, SPIE-2008, San Jose, CA Jan 22, 2008;
68. "Semiconductor Scintillator for Gamma Radiation Detection Based on the Burstein Shift, *Workshop on Frontiers in Electronics* (WOFE-2007), Cozumel, Mexico, Dec 16, 2007; Published Paper: Ref. 228;
67. "Semiconductor Scintillator and 3D Integration", (Plenary lecture) *International Symposium on Nano and Giga Challenges in Electronics and Photonics: From Atoms to Materials to Devices to System Architecture*, Phoenix, Arizona, March 12-16, 2007;
66. "Semiconductor high-speed scintillator with excellent isotope identification and imaging capabilities", *12th Advanced Heterostructure Workshop*, Kona Hawaii, December 3-8, 2006;
65. "Real Space Transfer: Karl's Baby Matures", *Karl Hess Symposium*, University of Illinois at Urbana-Champaign (Beckman Institute for Advanced Science and Technology) Urbana, Illinois, May 1-2, 2006;
64. "Waveguides with uniaxially patterned layers", *Photonics West*, Symposium on *Quantum Sensing and Nanophotonic Devices*, San Jose, CA, January 22-25, 2006;
63. "Non-classic SOI devices: Genuine or copyright from III-V", *EuroSOI-2006*, Grenoble, France, March 6-11, 2006;
62. "Multichannel optical frequency modulation system for free-space optical communications", *International School of Solid State Physics, 35-th Workshop: Physics and Technology of Terahertz Photonics*, Erice, Italy, July 20-26, 2005; published paper: Ref. 216
61. "Optical Frequency Modulation: Sources and Detectors", *Advanced Workshop on Frontiers in Electronics* (WOFE), Aruba, Dec 17-24, 2004; published paper: Ref. 216;
60. "On the possibility of an intersubband laser in silicon-on-insulator", *Advanced Workshop on Frontiers in Electronics* (WOFE), Aruba, Dec 17-24, 2004; published paper: Ref. 215;
59. "Research opportunities in electronics", Army Research Office (ARO) *Electronics Coordinating Group (ECOG) Strategic Research Planning Meeting*, Charlotte, NC, July 12-14, 2004;

58. "Distributed Feedback Quantum Cascade Laser with Widely Tunable Wavelength", *International Workshop on Quantum Cascade Lasers*, Seville, Spain, January 4-8, 2004; viewgraphs at <http://www.iiiv.cornell.edu/allwood/spain2004/>
57. "Real space transfer devices in SOI", 203rd Meeting of the Electrochemical Society *SOI Symposium*, Paris, France, April 27 – May 2, 2002; published paper: Ref. 194.
56. "Automatic generation of RF compact models from device simulation", 5th International Conference on *Modeling and Simulation of Microsystems*, San Juan, PR, April 22-26, 2002; published paper: Ref. 182.
55. "Temperature insensitive quantum dot laser", *International Workshop on Frontiers in Electronics, WOFE-2*, San Croix, VI, January 6-11, 2002; published paper: ref. 190.
54. "Temperature insensitive quantum dot laser", *2001 International Semiconductor Research Symposium*, Washinton, DC, December 5-7, 2001; published paper: ref. 190.
53. "Electronics Based on First-Order Metal-Insulator Transition", 3rd International Workshop on *Future Trends in Microelectronics*, Bendor, France, June 24-29, 2001; published paper: ref. 181.
52. "Quantum effects in SOI Devices", *International Franco-Swedish Workshop on SOI*, Grenoble, France (March 8-9, 2001).
51. "Quantum-effect and hot-electron devices", *International Olympic Vision Photovoltaics Conference*, Sydney, Australia (Sept 23-39, 2000)
50. "Electron electron interaction and classical mesoscopic phenomena in semiconductors", 2nd International Workshop on *Physics and Computer Modeling of Devices Based on Low Dimensional Structures*, Aizu-Wakamatsu, Japan (March 10-15, 1998); Published paper: ref. 161.
49. "Hot electron effects in long wavelength lasers", 1997 Fall MRS Meeting, Symposium F on "*Infrared Applications of Semiconductors II*", Boston, Mass (December 1-4, 1997); published paper: ref. 155
48. "Hot electrons in quantum cascade lasers", *Workshop on Semiconductor Infrared Detectors and Emitters*, Ottawa, Canada (July 23-25, 1997).
47. "Hot electrons in quantum cascade lasers", *Advanced Workshop on Frontiers in Electronics (WOFE)*, Tenerife, Canary Islands, Spain (January 6-12, 1997); Published paper: ref. 146.
46. "Strategies in multicolor fluorescence detection based on semiconductor lasers", Cambridge Healthtech Institute's *2nd Annual Microfabrication Technology for Biomedical Applications Conference*, San Jose, CA (October 24-25, 1996).
45. "Theory of gain spectra and temperature characteristics of quantum cascade lasers", *23rd International Symposium on Compound Semiconductors (ISCS-23)* St.Petersburg, Russia (September 23-27, 1996); Published paper: ref. 145
44. "Temperature dependence of the threshold in quantum cascade lasers", *International Workshop on Physics and Computer Modeling of Devices Based on Low Dimensional Structures*, Aizu-Wakamatsu, Japan (November 7-9, 1995); Published paper: ref. 137.
43. "Active Packaging: a New Fabrication Principle for High Performance Devices and Systems", NATO Advanced Research Workshop on *Future Trends in Microelectronics: Reflections on the Road to Nanotechnology*, Bendor, France (July 17-21, 1995); published paper: ref. 144.
42. "Novel High-Speed Optoelectronic Logis Elements and the Future of Microelectronics", meeting of the *Long Island IEEE Lasers & Electro-Optics Society (LEOS)* Farmingdale, LI (June 21, 1995).
41. "Active Packaging: a New Fabrication Principle for Ultra-High Performance Components and Systems", plenary invited talk at the *International Symposium Nanostructures: Physics and Technology*, St. Petersburg, Russia (20-24 June, 1994); extended abstract: ref. 130.
40. "Dual modulation of semiconductor lasers", *Physics and Simulation of Optoelectronic Devices II Conference, SPIE OE/LASE'94 Symposium*, Los Angeles, CA, Jan 23-28 (1994); published paper: ref. 121.

39. "Ultrafast operation of heterostructure bipolar transistors resulting from coherent base transport of minority carriers", *International semiconductor device research symposium (ISDRS'93)* Charlottesville, VA, December 1-3, 1993; published paper: ref. 122.
38. "Dual modulation of semiconductor lasers", *International semiconductor device research symposium (ISDRS'93)* Charlottesville, VA, December 1-3, 1993; published paper: ref. 121.
37. "Fast data coding using modulation of interband optical properties by intersubband absorption in quantum wells", NATO Advanced Research Workshop on *Quantum Well Intersubband Transition Physics and Devices*, Whistler, B.C., Canada, September 7-10 (1993); published paper: ref. 126.
36. "Ultra-fast heterostructure transistors for low-noise amplifiers", Symposium on *Ultralow-noise amplifiers: current status and future prospects*, American Physical Society Meeting, Washington, DC, April 12-15, 1993; abstract in *Bull. Am. Phys. Soc.* **38**, No. 2 pp. 1010-1011 (1993).
35. "The theory of ultra high frequency performance HBT's", Optical Society of America Conference on *Ultrafast Electronics and Optoelectronics*, San Francisco, CA, January 25-27 (1993); publ. in *OSA Proceedings*.
34. (1) "Functional Light-Emitting Logic Devices Based on Real Space Transfer", (2) "Ballistic and Coherent Effects in Heterojunction Bipolar Transistors", and (3) "Hot Electron Instabilities in Charge Injection Transistors", invited lectures at the *Institute of Electronics Symposium*, Hsinchu, Taiwan, December 10-12 (1992).
33. "Light-emitting charge injection transistors in InP-based heterostructures", Engineering Foundation Conference on *Advanced Heterostructure Transistors*, Keauhou-Kona, HA, November 29 - Dec. 4 (1992).
32. (1) "Hot-electron instabilities in real-space transfer transistors" and (2) "Light emitting logic devices based on real-space transfer", NATO Advanced Research Workshop on *Negative Differential Resistance and Instabilities in 2D Semiconductors*, Lucca (Italy) September 20-25 (1992); published paper: ref. 113.
31. "Light emitting logic devices based on the real-space transfer of hot electrons", *6th Canadian Semiconductor Technology Conference*, Ottawa, Canada, August 11-13, 1992.
30. "Broken symmetry and hot-electron domains in real-space transfer devices", *SPIE Conference on the Physics and Simulation of Optoelectronic devices*, Somerset, NJ March 23-27, 1992; published paper: ref. 106.
29. "Collector-controlled states and the formation of hot-electron domains in real-space transfer transistors", *1991 International semiconductor device research symposium (ISDRS)* Charlottesville, VA, December 4-6, 1991; published paper: ref. 98.
28. "Real-Space Transfer Transistors in InGaAs/InAlAs Heterostructures", *Seventh International Conference on Hot Carriers*, Nara, Japan, July 1-5, 1991; published paper: ref. 101.
27. "Polarization oscillations in coupled quantum wells", *Workshop on Granular Nanoelectronics*, Urbana, IL, May 15-17, 1991.
26. "Charge Injection Logic", plenary lecture at the *Third International Electronic Devices and Materials Symposium (IEDMS'90)* Hsinchu, Taiwan, November 14-16, 1990; published paper: ref. 79.
25. "Real-Space Transfer Transistors in InGaAs/InAlAs Heterostructures", Engineering Foundation Conference on *Advanced Heterostructure Transistors*, Keauhou-Kona, HA, December 3-8 (1990).
24. "Charge Injection Transistors and Circuits", *5th International Conference on the Physics of Electro-Optic Microstructures and Microdevices*, Heraklion, Crete, Greece, July 30 - August 3, 1990; published paper: ref. 83.
23. "Quantum Electronics and Novel Devices", Symposium on *Advanced Semiconductor Devices for the 1990's*, Toronto, Canada, May, 1990.
22. "Devices Based on Si-Ge Heterojunctions", "*Fifth International Workshop on Physics of Semiconductor Devices*", Delhi, India, December 11-16, 1989.

21. "Recent Developments in the Physics of Semiconductor Heterojunction Devices", Plenary lecture at the Institute of Physics 1989 "*Solid State Physics Conference*", Warwick, England, December 19-21, 1989.
20. (1) "New Developments in Resonant Tunneling" and (2) "Percolation Theory of the Integral Quantum Hall Effect", NATO Advanced Study Institute School on "*Electronic properties of Multilayers and Low Dimensional Semiconductor Structures*", Castera-Verduzan, France, September 11 - 22, 1989.
19. "Quantum Well Devices for Millimeter Wave Applications", *CRL/TRIO Symposium on "Heterostructure millimeter-wave devices and circuits"*, Hamilton, Canada, June 6, 1989.
18. "Quantum Capacitance of a Two-Dimensional Electron Gas and Resonant Tunneling Transistors", *Engineering Foundation Conference on Advanced Heterostructure Transistors*, Keauhou-Kona, HA, December 5-10 (1988).
17. "Coherent versus Incoherent Resonant Tunneling and Implications for Fast Devices", keynote lecture at the *Fourth International Conference on Superlattices, Microstructures and Microdevices (5th Trieste Semiconductor Symposium)*, Trieste, Italy, August 8-12 (1988); published paper: ref. 69.
16. "Heterostructure Devices Based on Reduced Dimensionality of Electronic States", *Fourth Canadian Semiconductor Technology Conference*, Ottawa, Canada, August 9-11 (1988).
15. "Novel High-Speed Semiconductor Devices: an Overview", *1987 Superconductive Electronics Workshop*, Cota de Casa, CA, October 25-29 (1987).
14. "Infrared Detectors Based on the Photon Drag Effect and Intersubband Absorption by a Two-Dimensional Electron Gas", *Third International Conference on Superlattices, Microstructures & Microdevices*, Chicago, August 17-20 (1987).
13. "Electronic Devices Using Multilayered Structures", NATO Advanced Study Institute School on *Physics, Fabrication and Applications of Multilayered Structures*, Ile de Bendor, France, June 22 - July 4th (1987); published paper: ref. 68.
12. "Theory of Negative Resistance Effects in Heterostructure Tunneling", *March Meeting of the American Physical Society*, New York, 1987; abstract in *Bull. Am. Phys. Soc.* **32**, p. 616 (1987).
11. "Physics of Resonant Tunneling Devices", *4th International Workshop on Future Electron Devices: Superlattice Devices*, Tokyo, Japan, February 9-11 (1987).
10. "The Percolation Approach to the Quantum Hall Effect", *International Conference on the Application of High Magnetic Fields in Semiconductor Physics*, Würzburg, Germany, August 1986; published paper: ref. 55.
9. "Hot-Electron Semiconductor Devices", *Canadian Association of Physicists 41st Annual Congress*, Edmonton, Alberta, June 1986; abstract in *Physics in Canada* **42**, p. 13 (May, 1986).
8. (1) "Resonant tunneling devices" and (2) "Infrared photodetectors on a silicon chip", *Fourth International Winter School on New Developments in Solid State Physics (Two-Dimensional Systems: Physics and Devices)*, Mauterndorf, Austria, February 1986; published paper: ref. 48.
7. "Novel semiconductor device structures and concepts", *IEEE 16th Semiconductor Interface Specialists Conference*, Ft. Lauderdale, Florida, December 1985.
6. "Hot-electron transport in heterostructure devices", *4th International Conference on Hot Electrons in Semiconductors*, Innsbruck, Austria, July 1985; published papers: refs. 40 and 41.
5. "Hot electron transistors", *SRC Post-Shrink Silicon Device Workshop*, Chapel Hill, N.C., January 1985; limited distribution proceedings of the workshop (R. M. Burger, editor) are available from the Semiconductor Research Corporation.
4. "Hot electron injection devices", *International Conference on Superlattices, Microstructures and Microdevices*, Champaign, IL., Aug. 1984; published paper: ref. 33.
3. "The Ordinary Quantum Hall Effect", *Gordon Research Conference on MIS systems*, Tilton, NH, July 1984.

2. "Charge Injection Devices Based on Real-Space Hot-Electron Transfer", *March Meeting of the American Physical Society*, Detroit, 1984; abstract in *Bull. Am. Phys. Soc.* **29**, p. 420 (1984).
1. "The Quantum Hall Effect", series of lectures at the *School on Semiconductor Interfacial Physics*, Université de Sherbrooke, Quebec, Canada, October 1983; a set of notes (26 pages) has been widely distributed.