List of Patents and Publications

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Contents

Patents Issued

51. US. Pat. **8,253,109** "Slab scintillator with integrated two-sided photoreceiver," (with J. H. Abeles of Sarnoff Corp., filed Nov 2011, issued Aug 28, 2012)

50. US Pat. **8,158,941** "Bolometric sensor with high TCR and tunable low resistivity" (with Michael Gurvitch, Aleksandr Polyakov, Aleksandr Shabalov, filed 2010, issued 2012).

49. US Pat. **8,084,838** "Large-area PIN diode with reduced capacitance" (sole inventor, filed 2009, issued 2011)

48. US. Pat.**7,876,795** "Semiconductor light source with electrically tunable emission wavelength" (with G. Belenky, J. Bruno, M. Kisin, L. Shterengas, S. Suchalkin, R. Tober, filed 2005, issued 2011)

47. US Pat. **7,643,718** "Photonic waveguide device for modal control," (with Arsen Subashiev; filed 2006, issued 2010)

46. US Pat. **7,326,637** "Method and system for bonding a semiconductor chip onto a carrier using micro-pins" (with S. Lee and M. Gurvitch; filed 2006, issued 2008).

45. US Pat. **7,310,361** "Intersubband semiconductor lasers with enhanced subband depopulation rate" (with G. Belenky *et al.*, filed 2004, issued 2007).

44. US Pat. **7,265,354** "Semiconductor scintillation high-energy radiation detector" (with Alexander Kastalsky and Boris Spivak; filed 2005, issued 2007).

43. US Pat. **7,064,432** "Method and system for bonding a semiconductor chip onto a carrier using micro-pins" (with S. Lee and M. Gurvitch; filed 2001, issued 2006).

42. US Pat. **6,944,407** "Method and apparatus for detecting radiation" [optical communication link] (with V. Gorfinkel and M. Gouzman; filed 2002, issued 2005).

41. US Pat. **6,934,030** "Method and apparatus for detecting radiation" [X-ray] (with Vera Gorfinkel and Mikhail Gouzman; filed 2002, issued 2005).

40. US Pat. **6,870,178** "Semiconductor laser with reduced temperature sensitivity" (with Levon Asryan, filed 2002, issued 2005).

39. US Pat. **6,819,696** "Intersubband semiconductor lasers with enhanced subband depopulation rate" (with G. Belenky *et al.*, filed 2001, issued 2004).

38. US Pat. **6,771,367** "Method and apparatus for detecting radiation," [electroluminescence] (with V. Gorfinkel and M. Gouzman; filed 2002, issued 2004).

37. US Pat. **6,760,109** "Method and apparatus for detecting radiation" [interacting EM radiation] (with Vera Gorfinkel and Mikhail Gouzman; filed 2002, issued 2004).

36. US Pat. **6,759,247** "Method and apparatus for detecting radiation," [chemiluminescence] (with V. Gorfinkel and M. Gouzman; filed 2002, issued 2004).

35. US Pat. **6,528,801** "Method and apparatus for detecting radiation," (with Vera Gorfinkel and Mikhail Gouzman; filed 1998, issued 2003).

34. US Pat. **6,497,804** "Method and apparatus for DNA sequencing" [network sequencer] (with Vera Gorfinkel and Mikhail Gouzman; filed 1999, issued 2002).

33. US Pat. **6,475,362** "Method and apparatus for compression of DNA samples for DNA sequencing" (with V. Gorfinkel and M. Gouzman; filed 1999, issued 2002).

32. US Pat. **6,464,852** "Multicapillary bundle for electrophoresis and detection for DNA" (with Vera Gorfinkel and Mikhail Gouzman; filed 1999, issued 2002).

31. US Pat. **6,370.560** "Load sharing controller for optimizing resource utilization cost" (with Tom Robertazzi and Saravut Charcranoon; filed 1998, issued 2002).

30. US Pat. **6,064,511** "Fabrication Methods and Structured Materials for Photonic Devices" (with C.Fortmann, J.Coleman, R.Tonucci; filed 1998, issued 2000).

29. US Pat. **6,038,023** "Sensors for Detection and Spectroscopy" (with Brad Carlson, Vera Gorfinkel and Mikhail Gouzman; filed 1998, issued 2000).

28. US Pat. **5,889,989** "Load Sharing Controller for Optimizing Monetary Cost" (with Tom Robertazzi and Jeeho Sohn; filed 1996, issued 1999).

27. US Pat. **5,784,157** "Method and apparatus for identifying fluorophores" (with V. B. Gorfinkel, filed 1995; issued 1998).

26. US Pat. **5,550,397** "Metal oxide semiconductor transistors having a polysilicon gate electrode with nonuniform doping in source-drain direction" (with N. Lifshitz, filed 1993, issued 1996).

25. US Pat. **5,496,743** "Method of making an article comprising a semiconductor device", (filed 1993, issued 1996).

24. US Pat. **5,461,245** "Article comprising a bipolar transistor with a floating base" (with Z. S. Gribnikov, filed 1994, issued 1995).

23. US Pat. **5,457,709** "Unipolar semiconductor laser" [the first QCL patent] (with F. Capasso et al., filed 1994, issued 1995).

22. US Pat. **5,329,144** "A heterojunction bipolar transistor with a specific graded base structure" [enhanced diffusion of minority carriers] (filed 1993, issued 1994).

21. US Pat. **5,323,053** "Semiconductor devices using epitaxial silicides on (111) surfaces etched in (100) silicon substrates" (with G. L. Miller, filed 1992, issued 1994).

20. US Pat. **5,311,526** "Article that comprises a semiconductor laser, and method of operating the article" [dual modulation] (with V. Gorfinkel, filed 1993, issued 1994).

19. US Pat. **5,309,003** "Article comprising a real-space transfer semiconductor device and method of making the article" (filed 1992, issued 1994)

18. US Pat. **5,304,816** "Article comprising a ``ballistic'' heterojunction bipolar transistor" (with A. A. Grinberg, filed 1992, issued 1994).

17. US Pat. **5,300,789** "Article comprising means for modulating the optical transparency of a semiconductor body, and method of operating the article" (with V. B. Gorfinkel, filed 1991, issued 1994).

16. US Pat. **5,223,723** "Light emitting device" (filed 1990, issued 1993).

15. US Pat. **5,206,526** "Staircase bandgap photodetector using recombination" (with C.-T. Liu, filed 1991, issued 1993).

14. US Pat. **5,146,078** "Articles and systems comprising optically communicating logic elements including an electro-optical logic element" (filed 1991, issued 1992).

13. US Pat. **5,012,486** "Vertical cavity semiconductor laser with lattice-mismatched mirror stack" (with Y.-H. Xie, filed 1990, issued 1991).

12. US Pat. **4,999,843** "Vertical semiconductor laser with lateral electrode contact to reduce resistive power loss" (with Y.-H. Xie, filed 1990, issued 1991).

11. US Pat. **4,999,687** "Logic element and article comprising the element", [*the RST device* **NORAND** (**ORNAND**)] (with M. R. Pinto, filed 1990, issued 1991).

10. US Pat. **4,903,092** "Real space electron transfer device using hot electron injection" (with A. Kastalsky, filed 1983, refiled 1986, refiled 1989; issued 1990).

9. US Pat. **4,860,064** "Transistor comprising a 2-dimensional carrier gas collector situated between emitter and gate" (sole inventor, filed 1987, issued 1989).

8. US Pat. **4,829,349** "Transistor having voltage-controlled thermionic emission" (with R. F. Kazarinov, filed 1983, issued 1989).

7. US Pat. **4,806,996** "Dislocation-free epitaxial layer on a lattice-mismatched porous or otherwise submicron patterned single crystal substrate" (sole inventor, filed 1986, refiled 1988; issued Feb 1989).

6. US Pat. **4,769,341** "Method of fabricating non-silicon materials on silicon substrate using an alloy of Sn and group IV semiconductors" (filed 1986, issued 1988).

5. US Pat. **4,725,870** "Silicon germanium photodetector" (with J. C. Bean and T. P. Pearsall, filed 1985, issued 1988).

4. US Pat. **4,704,622** "Negative transconductance device" (with F. Capasso, filed 1985, issued 1987).

3. US Pat. **4,691,215** "Hot electron unipolar transistor with two-dimensional degenerate electron gas base with continuously graded composition compound emitter" (filed 1985, issued 1987).

2. US Pat. **4,514,748** "Germanium p-i-n photodetector on silicon substrate" (with J. C. Bean and A. Kastalsky, filed 1983, issued 1985).

1. US Pat. **4,488,164** "Quantized Hall effect switching device" (with R. F. Kazarinov, filed 1982, issued 1984).

Patents Submitted/Pending

"Layered Semiconductor Scintillator," RF File R-8324, with Arsen Subashiev; US Patent application, No. 13/316,706 (filed Dec 2011);

"Slab scintillator with integrated two-sided photoreceiver," RF File R-8194, with J. H. Abeles of Sarnoff Corp.; US Patent application, No. 13/296,516 (filed Nov 2011);

"High-energy scintillation detector comprising multiple semiconductor slabs," with A. Kastalsky; US Pat. Application Ser. No. 11/703,805 (filed 02/08/2007); Published Application Number 20080191138.

."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 April, 2002; Full application April 14, 2003; Published Application Number: 20040021100.

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Journal Publications

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245. Serge Luryi, Oleg Semyonov, Arsen Subashiev, and Zhichao Chen, "Direct observation of Lévy flight of holes in bulk n-InP", submitted to Physical Review; arXiv:1205.4975v1 [http://arxiv.org/abs/1205.4975] (2012)

244. Serge Luryi and Arsen Subashiev, "Levy Flight of Holes in InP Semiconductor Scintillator", arXiv:1202.5576v1 [http://arxiv.org/abs/1202.5576v1] (to appear as invited paper in a book volume, WOFE-2011).

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239. Arsen Subashiev, Oleg Semyonov, Zhichao Chen, and Serge Luryi, "Urbach tail studies by luminescence filtering in moderately doped bulk InP," *Applied Physics Letters* **97**, 181914 (2010)

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233. M. Gurvitch, S. Luryi, A. Polyakov, A. Shabalov, "Nonhysteretic phenomena in the Metal-Semiconductor Phase-Transition Loop of VO2 Films for Bolometric Sensor Applications", *IEEE Transactions on Nanotechnology* (2010) in print.

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213. Serge Luryi, "Physics, Philosophy, and ... Ecology", *Physics Today*, Vol. **59**, No 5, p. 51 (May 2006).

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