Konstantin K. LIKHAREV

Department of Physics and Astronomy
Stony Brook University (State University of New York)
Stony Brook, NY 11794-3800
Phone +1-631-398-2013
E-mail konstantin.likharev@stonybrook.edu
Web site https://you.stonybrook.edu/likharev/

Education

1966: Diploma (M.S.) in Physics, from Moscow State University, Russia
1969: Candidate of Science (Ph.D.) in Physics, from Moscow State University, Russia
1979: Doctor of Science in Physics, from Moscow State University and the Supreme Attestation Committee of the U.S.S.R.

Continuing Appointments

(i) Department of Physics, Moscow State University, Russia:
1969-1973: Junior Scientist
1973-1987: Senior Scientist
1987-1988: Major Scientist
1988-1991: Head, Laboratory for Cryoelectronics
1991-2007: Adjunct Leading Scientist
(ii) Department of Physics and Astronomy, Stony Brook University:
1991-2002: Professor
2002-2017: Distinguished Professor
2017- 2020: John S. Toll Professor
2020-present: Distinguished Professor Emeritus

Visiting Positions

1996 (Jun. – Jul.): Eminent Visiting Scientist, RIKEN, Japan
1998 (Jan. – Jul.): Visiting Professor, Delft University of Technology, The Netherlands

Honors and Awards

1976: First Award, Young Scientists Council, Moscow State University
1980: Research Award, USSR Ministry for Higher Education
1984: Discovery Award, USSR Committee on Inventions and Discoveries
1996: Honorary Membership, Russian Metrological Academy
1997: Fellowship, American Physical Society
2002: Distinguished Professorship, State University of New York
2004: Award, IEEE Council for Applied Superconductivity
2008: Fellowship, Institute for Electrical and Electronic Engineers
2017: John S. Toll Professorship, Stony Brook University

Citations (as of August 30, 2024)

Google Scholar: 34,418 citations; h-index 75
Web of Science: 16,746 citations; h-index 55

MAJOR PUBLICATIONS

A. BOOKS

1. "*Systems with Josephson Junctions: Basic Theory*" (with B. T. Ulrich). Moscow U. Publishers (1978), 447 pp., in Russian.
2. "*Dynamics of Josephson Junctions and Circuits*". Gordon and Breach, New York (1986), 634 pp.
3. "*Essential Graduate Physics: Lecture Notes and Problems"*. Open-access online material[1] (2013), 2,896 pp.
4. "*Classical Mechanics: Lecture notes*". IOP Publishing (2017), 312 pp.
5. "*Classical Mechanics: Problems with solutions*". IOP Publishing (2018), 292 pp.
6. "*Classical Electrodynamics: Lecture notes*". IOP Publishing (2018), 512 pp.
7. "*Classical Electrodynamics: Problems with solutions*". IOP Publishing (2018), 464 pp.
8. "*Quantum Mechanics: Lecture notes*". IOP Publishing (2019), 570 pp.
9. "*Quantum Mechanics: Problems with solutions*". IOP Publishing (2019), 581 pp.
10. "*Statistical Mechanics: Lecture notes*". IOP Publishing (2019), 289 pp.
11. "*Statistical Mechanics: Problems with solutions*". IOP Publishing (2019), 286 pp.
12. "*Essential Quotes for Scientists and Engineers*". Springer (2021), 239 pp.

B. REVIEW PAPERS AND INVITED BOOK CHAPTERS

1. "S-c-S Contacts as Nonlinear Elements of Microwave Receiving Devices" with A.N. Vystavkin *et al*.). *Rev. Phys. Appl.* **9**, No. 1, pp. 79-109 (1974).
2. "Superconductor Electronics" (with V.N. Gubankov). *Radiotekhnika i Elektronika* **20** , No. 1, pp. 1-27 (1975) - in Russian.
3. "Superconducting Weak Links". *Rev. Mod. Phys.* **51**, No. 1, pp. 101-160 (1979).
4. "Millimeter-Wave Josephson-Junction Receivers" (with V. V. Migulin). *Radiotekhnika i Elektronika* **25**, No. 6, pp. 1121-1150 (1980) [Radio Eng. and Electron. Phys. **25**, No. 6, pp. 1-18 (1980)].
5. "Signal and Noise Properties of SQUIDs" (with V. V. Danilov and O. V. Snigirev). In: *SQUID`80*, ed. by H.-D. Hahlbohm and H. Lubbig, Walter de Gruyter, Berlin, pp. 437-507 (1980).
6. "Performance Limits of Microwave Receivers with Josephson Junctions" (with V. P. Zavaleev). *IEEE Trans. Magn.* **17**, No. 1, pp. 830-833 (1981).
7. "Really-Quantum Macroscopic Effects in Weak Superconductivity". *Uspekhi Fiz. Nauk* **131**, No. 1, pp. 169-184 (1983) [*Sov. Phys. - Uspekhi* **26**, No. 1, p. 87 (1983)].
8. "Mutual Phase Locking in Josephson Junction Arrays" (with A.K. Jain *et al*.). *Phys. Repts.* **109**, No. 6, pp. 309-426 (1984).
9. "Secondary Quantum Macroscopic Effects in Weak Superconductivity" (with A. I. Larkin and Yu. N. Ovchinnikov). *Physica **B+C*** **126**, No. 1-3, pp. 414-422 (1984).

[1] Available on SBU's *Academic Commons* site http://commons.library.stonybrook.edu/egp/ and on mirror Web sites https://essentialgraduatephysics.org/ and https://sites.google.com/site/likharevegp/.

10. "Quantum-Statistical Theory of Microwave Detection Using Superconducting Tunnel Junctions" (with I. A. Devyatov *et al*.). *J. Appl. Phys.* **60**, No. 5, 1808-1828 (1986).
11. "Possibility of Creating Analog and Digital Integrated Circuits Using The Discrete, One Electron Tunneling Effect", *Microelectronika* **16**, No. 3, pp. 195-209 (1987).
12. "Correlated Discrete Transfer of Single Electrons in Ultrasmall Tunnel Junctions". *IBM J. Res. & Develop*. **32**, No. 1, pp. 144-158 (1988).
13. "New Possibilities for Superconductor Electronics" (with V. K. Semenov and A. B. Zorin). In: *Superconducting Devices*, ed. by S. T. Ruggiero and D. A. Rudman, Academic Press, Boston, pp. 1-49 (1990).
14. "Single-Electronics: A Correlated Transfer of Single Electrons and Cooper Pairs in Systems of Small Tunnel Junctions" (with D. V. Averin). In: *Mesoscopic Phenomena in Solids*, ed. by B. Altshuler *et al.* Elsevier, Amsterdam, pp. 173-271 (1991).
15. "Progress and Prospects of the Superconductor Electronics". *Supercond. Sci. Technol.* **3**, No. 7, pp. 325-338 (1990).
16. "Josephson Effect in High-T_C Superconductivity" (with M.Yu. Kupriyanov). *Uspekhi Fiz. Nauk* **160**, No. 5, pp. 49-88 (1990) [*Sov. Phys. Uspekhi.* **33**, No. 5, p. 340 (1990)].
17. "Single-Electronics: Correlated Transfer of Single Electrons in Ultrasmall Junctions, Arrays, and Systems". In: *Granular Nanoelectronics*, ed. by D. Ferry *et al.*, Plenum, New-York, pp. 371-391 (1991).
18. "RSFQ Logic/Memory Family: A New Josephson-Junction Technology for Sub-Terahertz-Clock-Frequency Digital Systems" (with V.K. Semenov). *IEEE Trans. on Appl. Supercond.* **1**, No. 1, pp. 3-26 (1991).
19. "Superconducting Devices and Electronics". In: *Concise Encyclopedia of Magnetic and Superconducting Materials*, ed. by J. Evetts, Pergamon Press, Oxford, pp. 517-525 (1992).
20. "Single Charge Tunneling - Time Correlation of Tunnel Events" (with T. Claeson *et al*). *Supercond. Sci. Technol.* **4**, pp. 393-400 (1991).
21. "Possible Applications of the Single Charge Tunneling" (with D.V. Averin). In: *Single-Charge Tunneling*, ed. by H. Grabert and M. Devoret, Plenum, New York, pp. 311-322 (1992).
22. "Single-Electronics: Recent Developments" (with D.V. Averin). In: *Single-Electron Tunneling and Mesoscopic Devices*, ed. by H. Koch and H. Lubbig, Springer, Berlin, pp. 3-12 (1992).
23. "Single Electronics" (with T. Claeson). *Scientific American* **266**, pp. 80-85 (1992).
24. "Correlated Tunneling in Mesoscopic Systems". In: *New Phenomena in Mesoscopic Structures, Proceedings of Second Int. Symposium (Maui, Hawaii, December 7-11, 1992)*, pp. 1-8 (1992).
25. "Rapid Single-Flux-Quantum Logic". In: *The New Superconducting Electronics*, ed. by H. Weinstock and R. Ralston, Kluver, Dordrecht, pp. 423-452 (1993).
26. "Superfast Computation Using Superconductor Circuits". In: *Enabling Technologies for Peta(FL)OPS Computing*, ed. by T. Sterling *et al*., MIT Press, Cambridge, MA, pp. 19-28 (1994).
27. "Physics and Possible Applications of Single-Electron Devices". *FED Journal* **6**, Suppl. 1, pp. 5-14 (1995) - in Japanese.
28. "Ultrafast Superconductor Digital Electronics: RSFQ Technology Roadmap". *Czech. J. Phys.* **46**, Suppl. S6, pp. 3331-3338 (1996).
29. "Superconductors Speed up Computation". *Phys. World* **10**, No. 5, pp. 39-43 (1997); "Superconductors: Can They Speed up Computing? Reply". *Ibid*. **10**, No. 8, pp. 21-21 (1997).
30. "Novel Silicon-Based Nanoscale Devices for Terabit Memories". In*: GOMAC'98 Digest of Papers*, U.S. Defense Technical Information Center, Arlington, VA, pp. 395-398 (1998).

31. "Sub-single-electron Charge Transfer and Shot Noise in Nanostructures". In*: Proc. of the 16th Symposium on Energy Engineering Sciences*, ANL, Agronne, IL, pp. 16-23 (1998).
32. "Single-Electron Devices and Their Applications". *Proc. IEEE* **87**, No. 4, pp. 606-632 (1999).
33. "New Prospects for Silicon-Based Terabit Memories and Data Storage Systems". *Nanotechnology* **10**, No. 2, pp. 159-165 (1999).
34. "New Prospects for Terabit Integration". In: *Future Trends in Microelectronics*, ed. by S. Luryi, J. Xu, and A. Zaslavsky, Wiley, New York, pp. 323-338 (1999).
35. "RSFQ Computing: The Quest for Petaflops" (with M. Dorojevets *et al*.). In: *Future Trends in Microelectronics*, ed. by S. Luryi, J. Xu, and A. Zaslavsky, Wiley, New York, pp. 193-206 (1999).
36. "Superconductor Electronics: The Last (But Not Yet Lost) Battle". *FED Journal* **10**, Suppl. 2, pp. 3-4 (1999).
37. "Ultra High-speed Superconductor System Design: Phase 2" (with M. Dorojevets). *Lecture Notes in Computer Science* **1593**, pp. 1179-1182 (1999).
38. "Superconductor Devices for Ultrafast Computing". In: *Applications of Superconductors*, ed. by H. Weinstock, Kluwer, Dordrecht, pp. 247-293 (2000).
39. "New Prospects for Electrostatic Data Storage Systems" (with A. N. Korotkov). In: *Proc. of 8th Goddard Conference and 7th IEEE Symposium on Mass Storage Systems* (NASA, Greenbelt, MD), pp. 197-202 (2000).
40. "NOVORAM: A New Concept for Fast, Bit-Addressable Nonvolatile Memory Based on Crested Barriers". *IEEE Circuits and Devices* **16**, No. 4, pp. 16-21 (2000).
41. "100 GHz Scale Computing with Superconductor Interconnects", *Proc. of 7th Int. Dielectrics and Conductors for ULSI Multilevel Interconnects Conference (DCMIC)*, IMIC, Tampa, FL, pp. 87-104 (2001).
42. "Rapid Single Flux Quantum (RSFQ) Logic". In: *Encyclopedia of Materials: Science and Technology*. Elsevier, Amsterdam, pp. 8970-8975 (2001).
43. "RSFQ Technology: Devices and Circuits" (with P. Bunyk and D. Zinoviev). *Int. J. of High Speed Electronics and Systems* **11**, No. 1, pp. 257-305 (2001).
44. "Dragging Single Electrons". *Nature* **410**, No. 6828, pp. 531, 533 (2001).
45. "Sub-electron Charge Transfer and Multi-electron Avalanches in Single-electron Systems" (with A. Korotkov *et al.*). In*: Proc. of the 19th Symposium on Energy Engineering Sciences*, ANL, Agronne, IL, pp. 71-80 (2001)
46. "Report on UC Berkeley Nanoengineering Workshop" (with A. Majumar, J. Hickman, and A. Shakouri). Microscale Thermophysical Engineering **5**, No. 2, pp. 131-154 (2001).
47. "Sub-electron Charge Transport in Nanostructures" (with D. Kaplan *et al*.). In*: Proc. of the 20th Symposium on Energy Engineering Sciences*, ANL, Agronne, IL, pp. 231-240 (2002).
48. "RSFQ: The Fastest Digital Technology". *J. de Phys. IV* **12** (pr. 3), No. 5, p. 155 (2002).
49. "Sub-20-nm Electron Devices". In: *Advanced Semiconductor and Organic Nano-Techniques, Part 1*, ed. by H. Morkoç, Acad. Press, New York, pp. 239-302 (2003).
50. "Electronics Below 10 nm". In: *Nano and Giga Challenges in Microelectronics*, ed. by J. Greer *et al.,* Elsevier, Amsterdam, pp. 27-68 (2003).
51. "Hybrid Semiconductor-Molecular Nanoelectronics". *The Industrial Physicist* **9**, No. 3, pp. 20-23 (2003).
52. "CrossNets: High-Performance Neuromorphic Architectures for CMOL Circuits" (with A. Mayr, I . Muckra, and Ö. Türel). In: *Molecular Electronics III*, ed. by J. Reimers *et al.* (*Ann. New York Acad. Sci.* **1006**), pp. 146-163 (2003).
53. "Neuromorphic CMOL Circuits". In: *Proc. of IEEE-NANO 2003*, pp. 258 1-4 (2003).

54. "SET: Coulomb Blockade Devices". *Nano et Micro Technologies* **3,** No. 1-2, pp. 71-114 (2003).
55. "CMOL: A New Concept for Nanoelectronics". In: *Proc. of the 12th Int. Symp. on Nanostructures Physics and Technology* (St. Petersburg, Russia, 2004).
56. "Single-Electron Devices". In: *Encyclopedia of Nanoscience and Nanotechnology*, American Scientific Publishers, Stevenson Ranch, CA, vol. 9, pp. 865-884 (2004).
57. "Neuromorphic Architectures for Nanoelectronic Circuits" (with Ö. Türel, J. H. Lee, and X. Ma). *Int. J. of Circuit Theory and Applications* **32**, No. 5, pp. 277-302 (2004).
58. "Neuromorphic Architectures for Hybrid Nanoelectronic Circuits" (with J. H. Lee and X. Ma). In: *Proc. of the 8th Joint Conf. on Information Sciences*, pp. 1408-1411 (2005).
59. "CMOL: Devices, Circuits, and Architectures" (with D. Strukov). In: G. Cuniberti *et al.* (eds.), *Introducing Molecular Electronics*, Springer, Berlin, pp. 447-477 (2005).
60. "Afterlife for Silicon: CMOL Circuit Architectures" (with X. Ma, D.B. Strukov, and J. H. Lee). In: *Proc. of IEEE-NANO 2005*, Report TU-P7-1 (2005).
61. "CMOL" (with J. H. Lee, X. Ma, and D. B. Strukov). In: *Proc. of NanoArch'05*, pp. 3.9-3.16 (2005).
62. "CMOL: A Silicon-Based Bottom-Up Approach to Nanoelectronics", *Interface* **14**, No. 1, pp. 43-45 (2005).
63. "Hybrid CMOS/Nanoelectronic Digital Circuits: Devices, Architectures, and Design Automation" (with A. DeHon). In: *Proc. of ICCAD-2005* , IEEE Press, Piscataway, NJ, pp. 375-382 (2005).
64. "CMOL: Second Life for Silicon?", *Microelectronics Journal* **39**, pp. 177-183 (2008) (published online Dec.. 4, 2006).
65. "CMOL CrossNets: Possible Neuromorphic Nanoelectronic Circuits" (with J. H. Lee and X. Ma). In: *Advances in Neural Information Processing Systems 18*, ed. by Y. Weiss *et al*., MIT Press, Cambridge, MA, pp. 755-762 (2006).
66. "CMOL: Silicon's Chance for Reincarnation". In: *Proc. GOMACTech'2006*, pp. 349-352 (2006).
67. "Simplifying Hybrid Semiconductor-Nanodevice Circuits". In: *SPIE Newsroom*, available online at http://spie.org/x8653.xml (2006).
68. "Nanoarchitectonics: Advances in Nanoelectronics and Optronics" (with K. Wang *et al.*). In: *CRC Handbook of Nanoscience, Engineering and Technology*, 2nd ed., ed. by W. A. Goddard III *et al.*, CRC Press, pp. 10.1-10.24 (2007).
69. "Hybrid Semiconductor/Nanoelectronic Circuits". In: *Proc. of Nanotech'07* (NSTI, Cambridge, MA), p. 552-555 (2007).
70. "Single- and Few-Electron Memories". In: J. E. Brewer and M. Gill (eds.), *Nonvolatile Memory Technologies with Emphasis on Flash*, Wiley, Hoboken, NJ, pp. 689-696 (2008).
71. "Resistive and Hybrid CMOS/Nanodevice Memories". In: J. E. Brewer and M. Gill (eds.), *Nonvolatile Memory Technologies with Emphasis on Flash*, Wiley, Hoboken, NJ, pp. 696-703 (2008).
72. "NOVORAM/FGRAM". In: J. E. Brewer and M. Gill (eds.), *Nonvolatile Memory Technologies with Emphasis on Flash*, Wiley, Hoboken, NJ, pp. 703-707 (2008).
73. "Integrated Circuits Beyond CMOS". In: A. Korkin and F. Rosei (eds.), *Nanoelectronics and Photonics*, Springer, Berlin, 2008, pp. 5-7.
74. "Design and Defect Tolerance Beyond CMOS" (with X.S. Hu *et al*.). In: *Proc. CODES-ISSS*'08, ACM, pp. 223-229 (2008).
75. "Hybrid CMOS/Nanoelectronic Circuits: Opportunities and Challenges". *J. Nanoelectronics and Optoelectronics* **3**, No. 3, pp. 203-230 (2008).

76. "CrossNets: Neuromorphic Hybrid CMOS/Nanoelectronic Networks". *Science of Advanced Materials* **3**, No. 3, pp. 322-331 (2011).

77. "Reconfigurable Nano-Crossbar Architectures" (with D. B. Strukov). In: R. Waser (ed.), *Nanoelectronics and Information Technology*, 3rd ed., Wiley-VCH, Ch. 23 (2012).

78. "Superconductor Digital Electronics". *Physica C* **482**, pp. 6-18 (2012).

79. "Memory Technologies for Neural Networks" (with F. Merrikh-Bayat *et al*.). In: *Proc. of Int. Memory Workshop*, pp. 61-64 (2015).

80. "Spiking Neuromorphic Networks with Metal-Oxide Memristors" (with M. Prezioso *et al*.). In: *Proc. of ISCAS'2016* (Montreal, Canada, May 2016).

81. "Nanoelectronic Neurocomputing: Status and Prospects" (with L. Ceze *et al*.). In: *Proc. of 74th DRC* (Newark, DE, June 2016).

82. "Roadmap on Emerging Hardware and Technology for Machine Learning" (with K. Berggen *et al*.). *Nanotechnology* **32**, 012002 (2021).

83. "In Memory of Leonid Sergeevich Kuzmin (1946-2022)" (with A.Kalaboukhov *et al*.). *J. Low Temp. Phys*. (2023).

C. ORIGINAL PEER-REVIEWED PAPERS IN JOURNALS AND COLLECTIONS

1. "Experimental Study of Transients in the Parametric Oscillator" (with V. A. Rylov). *Vestnik Moskovskogo Universiteta, Ser. Fiz.-Astr.* No. 5, pp. 31-37 (1964) [*Moscow University Physics Bulletin* **9**, No. 5 (1964)].

2. "On the Excitation Process in the Two-Frequency Parametric Oscillator" (with V. A. Rylov). *Radiotekhnika i Elektronika* **10**, No. 12, pp. 2244-2246 (1965) [*Radio Eng. and Electron. Phys.* **10**, No. 12, p. 1918 (1965)].

3. "Parametric Oscillator Phase Locking at the Difference Frequency". *Radiotekhnika i Elektronika* **11**, pp. 2086-2088 (1965) [*Radio Eng. and Electron. Phys.* **11**, p. 1840 (1966)].

4. "Combinational Mechanism of the Oscillation Growth Limitation at the Parametric Excitation". *Radiotekhnika i Elektronika* **12**, No. 3, pp. 517-519 (1967) [*Radio Eng. and Electron. Phys.* **12**, No. 3, p. 476 (1967)].

5. "Transients in the Three-Stable-State Parametric Oscillator". *Radiotekhnika i Elektronika* **12**, No. 7, pp. 1306-1309 (1967) [*Radio Eng. and Electron. Phys.* **12**, p. 1217 (1967)].

6. "Instability Zones of a Hill Equation" (with E.A. Sharkov). *Vestnik Moskovskogo Universiteta, Ser. Fiz.-Astr.* No. 4, pp. 119-121 (1967) [*Moscow University Physics Bulletin* **12**, No. 4 (1967)].

7. "Parametric Oscillator as a Videoamplifier" (with E. A. Sharkov). *Radiotekhnika i Elektronika* **13**, No. 7, pp. 1321-1324 (1968) [*Radio Eng. and Electron. Phys.* **13**, No. 7, p. 1150 (1968)].

8. "Theory of Dissipative Phenomena in Parametric Oscillators". *Radiotekhnika i Elektronika* **13**, No. 9, pp. 1714-1716 (1968) [*Radio Eng. and Electron. Phys*. **13**, No. 9, p. 1150 (1968)].

9. "Parametric Interactions at the AC Josephson Effect". *Vestnik Moskovskogo Universiteta, Ser. Fiz.-Astr.* No. 5, pp. 104-108 (1968) [*Moscow State University Physics Bulletin* **13**, No. 5, p. 56 (1968)].

10. "Stability of the Parametric Oscillator at the Combinational Mechanism of Limitation" (with O. V. Snigirev). *Vestnik Moskovskogo Universiteta, Ser. Fiz.-Astr.* No. 6, pp. 98-101 (1968) [*Moscow State University Physics Bulletin* **13**, No. 6 (1968)].

11. "To the Theory of the Josephson Junction Detector". *Vestnik Moskovskogo Universiteta, Ser. Fiz.-Astr.* No. 6, pp. 83-91 (1969) [*Moscow State University Physics Bull.* **14**, No. 6, p. 65 (1969)].

12. "Nonlinear Microwave Properties of Superconducting Thin Films" (with V. N. Gubankov and N. M. Margolin). *Zh. Eksp. Teor. Fiz. Pis`ma Red*. **11**, No. 5, pp. 246-250 (1970) [*JETP Lett.* **11**, p. 157 (1970)].
13. "Parametric Conversion and Amplification Using Superconducting Point Contacts" (with A. N. Vystavkin *et al*.) *Radiotekhnika i Elektronika* **15**, No. 11, pp. 2404-2407 (1970) [*Radio Eng. and Electron. Phys.* **15**, No. 11, p. 2121 (1970)].
14. "Theory of Circuits Using Elements with Sharp-Shaped *I-V* Characteristics" (with A. N. Lagutkin). *Vestnik Moskovskogo Universiteta, Ser. Fiz.-Astr.* No. 1, pp. 82-85 (1971) [*Moscow University Physics Bulletin* **15**, No. 1 (1971)].
15. "Nonlinear Microwave Properties of Superconducting Thin Films in the Mixed State" (with V. N. Gubankov). *Fiz. Tverd. Tela* **13**, No. 1, 125-130 (1971) [*Sov. Phys.-Solid State* **13**, No. 1 p. 99 (1971)].
16. "Linear Electrodynamics of Superconducting Thin Film Strips of a Finite Width". Izv. Vyssh. Uchebn. Zaved. - *Radiofizika* **14**, No. 6, pp. 909-918 (1971) [*Radiophys. and Quant. Electron*. **15**, p. 714 (1972)].
17. "Formation of Mixed State in Plane Superconducting Thin Films". *Izv. Vyssh. Uchebn. Zaved. - Radiofizika* **14**, No. 6, pp. 919-925 (1971) [*Radiophys. and Quant. Electron*. **14**, No. 6, p. 722 (1972)].
18. "Nonlinear Electrodynamics of Narrow Superconducting Thin Films". *Izv. Vyssh. Uchebn. Zaved. - Radiofizika* **14**, No. 8, 1232-1241 (1971) [*Radiophys. and Quant. Electron.* **14**, No. 8, p. 964 (1972)].
19. "Vortex Motion and Josephson Effect in Superconducting Thin Film Bridges". *Zh. Eksp. Teor. Fiz.* **61**, pp. 1700-1711 (1971) [*Sov. Phys. - JETP* **34**, p. 906 (1972)].
20. "Electrodynamic Properties of Superconducting Point Contacts" (with V. K. Semenov). *Radiotekhnika i Elektronika* **16**, No. 11, pp. 2167-2172 (1971) [*Radio Eng. and Electron. Phys.* **16**, p. 1917 (1971)].
21. "Viscous Motion of Vortices in the Type II Superconductors" (with M. Yu. Kupriyanov). *Pis`ma Zh. Eksp. Teor. Fiz.* **15**, No. 6, pp. 349-353 (1972) [*JETP Lett.* **15**, p. 247 (1972)].
22. "Fluctuation Spectrum in Superconducting Point Contacts" (with V. K. Semenov) *Pis`ma Zh. Eksp. Teor. Fiz.* **15**, No. 10, pp. 625-629 (1972) [*JETP Lett*. **15**, p. 442 (1972)].
23. "Peculiarities of the Parametric Regeneration in Superconducting Point Contacts" (with A. N. Vystavkin *et al*.) *Radiotekhnika i Elektronika* **17**, No. 4, pp. 896-899 (1972) [*Radio Eng. and Electron. Phys.* **17**, p. 705 (1972)].
24. "Properties of Superconducting Point Contacts" (with V. N. Gubankov and N. M. Margolin). *Fiz. Tverd. Tela* **14**, No. 4, pp. 953-960 (1972) [*Sov. Phys.-Solid State* **14**, p. 819 (1972)].
25. "Properties of the Superconducting Point Contact in a Resonator" (with V. K. Semenov). *Radiotekhnika i Elektronika* **17**, No. 9, pp. 1983-1986 (1972) [*Radio Eng. and Electron. Phys.* **17**, p.1586 (1972)].
26. "Nonlinear Microwave Properties of Narrow Superconducting Films" (with V. N. Gubankov and N. B. Pavlov). *Fiz. Tverd. Tela* **14**, No. 11, pp. 3186-3191 (1972) [*Sov. Phys.-Solid State* **14**, p. 2721 (1973)].
27. "Observation of an Anomalous Microwave Impedance of Superconducting Point Contacts" (with A. N. Vystavkin *et al.*) *Pis`ma Zh. Eksp. Teor. Fiz*. **17**, No. 6 pp. 284-288 (1973) [*JETP Lett*. **17**, p. 204 (1973)].
28. "Effect of Fluctuations on the Microwave Impedance of Superconducting Point Contacts" (with V. K. Semenov). *Radiotekhnika i Elektronika* **18**, No. 8, pp. 1757-1759 (1973) [*Radio Eng. Electron. Phys.* **18**, p. 1290 (1973)].
29. "Characteristics of the Josephson-Effect Detector with a Superconducting Point Contact. I. Wide-Band Mode of Operation" (with V. K. Semenov). *Radiotekhnika i Elektronika* **18**, No. 11, pp. 2390-2397 (1973) *[Radio Eng. and Electron. Phys.* **18**, p. 1734 (1973)].
30. "Characteristics of the Josephson Effect Detector with a Superconducting Point Contact. II. Selective Modes" (with V. K. Semenov). *Radiotekhnika i Elektronika* **18**, No. 12, pp. 2595-2602 (1973) [*Radio Eng. and Electron. Phys.* **18**, pp. 1892 (1973)].

31. "Spectral Density of Fluctuations in Superconducting Point Contacts" (with V. K. Semenov). *Vestnik Moskovskogo Universiteta. Ser. Fiz.-Astr.* No. 4, pp. 493-496 (1974) [*Moscow University Physics Bulletin* **19**, No. 4 (1974)].

32. "Downconversion with a Superconducting Point Contact: Self-Pumping" (with V. N. Gubankov). *Radiotekhnika i Elektronika* **19**, No. 2, pp. 388-394 (1974) [*Radio Eng. and Electron. Phys*. **19**, No. 2, p. 101 (1974)].

33. "Downconversion with a Superconducting Point Contact: External Pumping" (with V. N. Gubankov). *Radiotekhnika i Elektronika* **19**, No. 3, pp. 583-589 (1974) [*Radio Eng. and Electron. Phys*. **19**, No. 3, p. 92 (1974)].

34. "Theory of Self-Phase-Locking in Parametric Oscillators" (with A. N. Lagutkin). *Vestnik Moskovskogo Universiteta. Ser. Fiz.-Astr.* No. 5, pp. 565-570 (1973) [*Moscow University Physics Bulletin* **18**, No. 5 (1973)].

35. "Coherent Vortex Motion in Superconducting Bridges of Large Size" (with V. N. Gubankov, V. P. Koshelets, and G.A. Ovsyannikov). *Zh. Eksp. Teor. Fiz. Pis`ma Red.* **18**, No. 5, pp. 292-295 (1973) [*JETP Lett.* **18**, p. 171 (1973)].

36. "Nonlinear Properties of Granular Superconducting Films". *Fiz. Tverd. Tela* **15**, No. 8, pp. 2524-2527 (1973) [*Sov. Phys.-Solid State* **15**, p. 1679 (1974)].

37. "Resistance of Superconductor in the Dynamic Mixed State" (with V. V. Danilov and M. Yu. Kupriyanov). *Fiz. Tverd. Tela* **16**, No. 2, pp. 935-938 (1974) [*Sov. Phys.-Solid State* **16**, 602 (1974)].

38. "Properties of a Superconducting Ring Closed with a Weak Link as a Device with Several Stable States" *Radiotekhnika i Elektronika* **19**, No. 7, pp. 1494-1502 (1974) [*Radio Eng. and Electron. Phys.* **19**, No. 7, p. 109 (1974)].

39. "Edge Barrier Effect on the Critical Current of Superconducting Thin Films" (with M. Yu. Kupriyanov). *Fiz. Tverd. Tela* No. 10, pp. 2829-2832 (1974) [*Sov. Phys. - Solid State* **16**, No. 10, p. 1835 (1975)].

40. "Isothermal Domains in Quasi-One-Dimensional Superconductors". *Pis`ma Zh. Eksp. Teor. Fiz.* **20**, No. 11, pp. 730-733 (1974) [*JETP Lett.* **20**, p. 338 (1974)].

41. "On Some Aspects of the SQUID Optimization" (with B. V. Vasiliev and V. V. Danilov). *IEEE Trans. on Magn.* **11**, No. 2, pp. 743-748 (1975).

42. "Properties of a Josephson Junction Triode". *Radiotekhnika i Elektronika* **20**, No. 3, pp. 660-662 (1975) [*Radio Eng. and Electron. Phys.* **20**, No. 3, p. 135 (1975)].

43. "Steady-State Properties of Superconducting Bridges" (with L. A. Yakobson). *Zh. Tekhn. Fiz*. **45**, No. 7, pp. 1503-1509 (1975) [*Sov. Phys.-Tekhn. Phys.* **20**, p. 950 (1975)].

44. "Dynamic Properties of Superconducting Filaments of a Finite Length" (with L. A. Yakobson). *Zh. Eksp. Teor. Fiz.* **68**, No. 3, pp. 1150-1160 (1975) [*Sov. Phys.-JETP* **41**, p. 570 (1976)].

45. "Dynamic Properties of the Variable Thickness Bridges" (with L. A. Yakobson). IEEE Trans. Magn. **11**, No. 2, pp. 860-865 (1975).

46. "Ultimate Performance of a Superconducting Quantum Magnetometer" (with V. V. Danilov). *Zh. Eksp. Teor. Fiz.* **45**, No. 5, pp. 1110-1116 (1975) [*Sov. Phys.-Tekhn. Phys.* **20**, p. 697 (1975)].

47. "Microwave Impedance of Superconductors in the Mixed State" (with M. Yu. Kupriyanov). *Zh. Eksp. Teor. Fiz.* **68**, No. 3, pp. 1506-1513 (1975) [*Sov. Phys.-JETP* **41**, p. 755 (1976)].

48. "Transition Between Abricosov and Josephson Vortices". *Fiz. Tverd. Tela* **17**, No. 9, pp. 2787-2789 (1975) [*Sov. Phys.-Solid State* **17**, p. 1856 (1976)].

49. "The $I(\varphi)$ Relationship, Abricosov Vortices and Josephson Vortices in the Variable Thickness Bridges" (with M.Yu. Kupriyanov and L.A. Maslova). In: *Proc. of the 14-th Conf. on Low Temp. Phys.*, ed. by M. Krusius and M. Vuorio, North- Holland, Amsterdam, **4,** pp. 104-107 (1975).

50. "Non-Josephson Radiation from a Cavity Containing a Superconducting Point Contact Junction" (with A. N. Vystavkin *et al.*). *IEEE Trans. Magn*. **11**, No. 2, pp. 834-837 (1975).

51. "Quantum Interferometer Signal in the Hysteretic Mode of Operation" (with B. V. Vasiliev and V. V. Danilov). *Zh. Tekhn. Fiz.* **46**, No. 11, pp. 2409-2414 (1976) [*Sov. Phys.-Tekhn. Phys.* **21**, p. 1419 (1976)].

52. "Microwave Receiver with a Josephson Junction Detector in a Self-Selection Mode" (with V. A. Kulikov). *Izv. Vyssh. Uchebn. Zaved. - Radiofizika* **19**, No. 4, pp. 543-556 (1976) [*Radiophys. Quant. Electron.* **19**, No. 4, p. 383 (1976)].

53. "Critical Currents of Variable Thickness Bridges" (with G. M. Lapir, L. A. Maslova, and V. K. Semenov). In: *Proc. of the 14-th nt. Conf. on Low Temp. Phys.*, ed. by M. Krusius and M. Vuorio, North-Holland, Amsterdam **4**, 108-111 (1975); *Fiz. Nizk. Temp.* **1**, No. 10, 1235-1243 (1975) [*Sov. J. Low Temp. Phys.* **1**, 590 (1976)].

54. $I(\varphi)$ Relationship for SNS Variable Thickness Bridges". *Pis`ma Zh. Tekhn. Fiz.* **2**, No. 1, pp. 29-34 (1976) [*Sov. Phys.- Tech. Phys. Lett.* **2**, p. 12 (1977)].

55. "Channeling of Magnetic Field in Josephson Junctions". *Fiz. Nizk. Temp.* **2**, No. 12, pp. 209-211 (1976) [*Sov. J. Low Temp. Phys.* **2**, No. 12, p. 104 (1977)].

56. "Dynamics of Some Single Flux Quantum Devices. I. Parametric Quantron". *IEEE Trans. Magn.* **13**, No. 1, pp. 242-244 (1977).

57. "Dynamics of Some Single Flux Quantum Devices. II. Inhomogeneous Flux Shuttle". *IEEE Trans. Magn.* **13**, No. 1, pp. 245- 247 (1977).

58. "Current Dependence of the Microwave Conductivity of Superconducting Thin Films" (with V. P. Andratskii *et al.*). *Zh. Eksp. Teor. Fiz.* **70**, No. 1, pp. 292-299 (1976) [Sov. Phys. JETP **43**, p. 151 (1977)].

59. "Josephson Vortices in the Variable Thickness Bridges" (with M. Yu. Kupriyanov and V. K. Semenov). *Fiz. Nizk. Temp.* **2**, No. 6, pp. 706-718 (1976) [*Sov. J. Low Temp. Phys*. **2**, p. 346 (1976)].

60. "Phenomenological Approach to Nonstationary Nonlinear Phenomena in Superconductors" (with M. Yu. Kupriyanov) In: *Proc. of the 14-th Int. Conf. Low Temp.*, ed. by M. Krusius and M. Vuorio, North-Holland, Amsterdam, vol. 2, pp. 357-360 (1975); *Fiz. Tverd. Tela* **18**, No. 7, 1947-1953 (1976) [Sov. Phys.-Solid State **18**, p. 1133 (1976)].

61. "*I-V* Curves of Low-Capacitance Josephson Junctions" (with A. B. Zorin). *Fiz. Nizk. Temp.* **3**, No. 2, pp. 148-151 (1977) [*Sov. J. Low Temp. Phys*. **3**, p. 70 (1977)].

62. "Properties of the Quasi-Autonomous Josephson Junction" (with L. S. Kuzmin). *Radiotekhnika i Elektronika* **22**, No. 8, pp. 1689-1698 (1977) [*Radio Eng. and Electron Phys.* **22**, No. 8, p. 109 (1977)].

63. "Performance Limits of the Two-Junction Magnetic Flux Detector" (with V. V. Danilov, O. V. Snigirev, and E. S. Soldatov). *IEEE Trans. Magn.* **13**, No. 1, 240-241 (1977); *Radiotekhnika i Elektronika* **22**, No. 11, pp. 2383-2391 (1977) [*Radio Eng. and Electron Phys.* **22**, No. 11 (1977)].

64. "Single-Frequency Parametric Amplifier Using Self-Pumped Josephson Junction" (with A. N. Vystavkin *et al.*). *IEEE Trans. Magn.* **13**, No. 1, 233-236 (1977); *Radiotekhnika i Elektronika* **22**, No. 6, pp. 1306-1309; No. 7, pp. 1530-1533 (1977) [*Radio Eng. Electron. Phys.* **22**, No. 6, p. 144; No. 7, p. 144 (1977)].

65. "Boundary Between the Static and Dynamic States in Long Josephson Junctions" (with M. Yu. Kupriyanov and V. K. Semenov). *Fiz. Nizk. Temp*. **2**, No. 10, pp. 1252-1256 (1976) [*Sov. J. Low Temp. Phys.* **2**, p. 610 (1976)].

66. "Properties of Josephson Junction in Wide-Band External Circuits" (with V. P. Zavaleev). *Radiotekhnika i Elektronika* **23**, No. 5, pp. 1061-1071 (1978) [*Radio Eng. and Electron Phys*. **23**, No. 5, p. 113 (1978)].

67. "Performance Limits of Some Wide-Band Devices with Josephson Junctions" (with V. P. Zavaleev). *Radiotekhnika i Elektronika* **23**, No. 6, pp. 1268-1278 (1978) [*Radio Eng. and Electron Phys*. **23**, No. 6, p. 120 (1978)].

68. "Applicability of the Theory of Josephson Effect in Tunnel Junctions to Weak Links" (with A. B. Zorin). *J. Phys.* **39**, No. 8 (Suppl. C6) pp. 573-574 (1978); *Fiz. Nizk. Temp.* **4**, No. 6, pp. 713-718 (1977) [*Sov. J. Low Temp. Phys.* **4**, 340 (1978)].

69. "Boundary Conditions for the Usadel Equations and Properties of Dirty SNS Sandwiches" (with Z. G. Ivanov *et al*.). *J. Phys.* **39**, No. 8 (Suppl. C6), pp. 556-557 (1978); *Fiz. Nizk. Temp.* **7**, No. 5, pp. 560-574 (1981) [*Sov. J. Low Temp. Phys.* **7**, No. 5, 274 (1981)].

70. "Single-Frequency Nondegenerate Regeneration in Parametric Circuits with External Pumping" (with V. N. Radzikhovskii). *Radiotekhnika i Elektronika* **24**, No. 8, pp. 1701-1703 (1979) - in Russian.

71. "Superconducting Quantum Interferometer with a Separate Drive Coil" (with S. S. Tinchev and O. V. Snigirev). *Radiotekhnika i Elektronika* **24**, No. 5, pp. 1087-1088 (1979) [*Radio Eng. and Electron Phys*. **24**, No. 5, p.143 (1979)].

72. "Properties of an Externally Pumped Josephson Junction" (with V. P. Zavaleev). *Radiotekhnika i Elektronika* **24**, No. 8, pp. 1630-1639 (1979) [*Radio Eng. and Electron Phys*. **24**, No. 8, p. 103 (1979)].

73. "A Simple Method of RF-SQUID Analysis and its Application to a SQUID with a Separate Pumping Coil" (with V. V. Tinchev and O. V. Snigirev). *IEEE Trans. Magn.* **15**, No. 1, pp. 439-442 (1979); *Radiotekhnika i Elektronika* **24**, No 8, pp. 1640-1648 (1979) [*Radio Eng. and Electron Phys*. **24**, No. 8, 110 (1979)].

74. "Josephson Junction with Lateral Current as a Vortex Transistor" (with V. K. Semenov, O. V. Snigirev, and B.N. Todorov). *IEEE Trans. Magn*. **15**, No. 1, pp. 420-423 (1979).

75. "Properties of Parametric Amplifiers Using Josephson Junctions with External Pumping" (with L. S. Kuzmin and V.V. Migulin). *IEEE Trans. Magn*. **15**, No. 1, pp. 454-457 (1979).

76. "Dynamic and Fluctuations Parameters of ac SQUIDs" (with V. V. Danilov). *Radiotekhnika i Elektronika* **25**, No. 8, pp. 1725-1735 (1980) [*Radio Eng. and Electron Phys.* **25**, No. 8, p. 112 (1980)].

77. "Dynamic and Fluctuation Parameters of dc SQUIDs" (with V. V. Danilov). *Radiotekhnika i Elektronika* **26**, No. 4, 842-851 (1982) - in Russian.

78. "High-Resistance Superconducting Microbridges with a Bismuth Span" (with A. L. Gudkov *et al*.). *Pis`ma Zh. Tekhn. Fiz.* **5**, No. 19, pp. 1206-1212 (1979) [*Sov. Phys.- Techn. Phys. Lett.* **5**, No. 10, p. 506 (1979)].

79. "The Sign of the Quasiparticle-Pair Interference Current in Superconducting Tunnel Junctions" (with A. B. Zorin, I. O. Kulik, and J. R. Schrieffer). *Fiz. Nizk. Temp.* **5**, No. 10, pp. 1138-1157 (1979) [*Sov. J. Low Temp. Phys*. **5**, p. 537 (1979)].

80. "Characteristics of Single-Frequency Nondegenerate Parametric Amplifier Using Externally Pumped Josephson Junction" (with L. S. Kuzmin and V. V. Migulin). *Radiotekhnika i Elektronika* **25**, No. 10, pp. 2195-2203 [*Radio Eng. and Electron Phys.* **25**, No. 10, p. 108 (1980)].

81. "Characteristics of Two-Frequency Degenerate Parametric Amplifier Using Externally Pumped Josephson Junction" (with L.S. Kuzmin and V. V. Migulin). *Radiotekhnika i Elektronika* **25**, No. 10, pp. 2204-2215 (1980) [*Radio Eng. and Electron Phys*. **25**, No. 10, p. 115 (1980)].

82. "Down-Conversion with the Josephson Junction at Large Values of the Intermediate Frequency" (with V. P. Dyakov and M. A. Tarasov). *Radiotekhnika i Elektronika* ***2*5**, No. 8, pp. 1736-1744 (1980) [*Radio Eng. and Electron Phys.* **25**, No. 8, p.122 (1980)].

83. "Phase Modulation and New Circuits of ac SQUIDs" (with S. A. Belonogov, O. V. Snigirev and S. S. Tinchev). *Radiotekhnika i Elektronika* **25**, No. 12, pp. 2639-2646 (1980) [*Radio Eng. and Electron Phys*. **25**, No. 12, p. 116 (1980)].

84. "Microwave-Biased SQUID with the High-*Q* Dielectric Resonator" (with E. S. Soldatov, V. A. Khanin, V. K. Kornev and O. V. Snigirev). *Radiotekhnika i Elektronika* **25**, No. 12, pp. 2647-2655 (1980) [*Radio Eng. and Electron Phys.* **25**, No. 12, p.116 (1980)].

85. "Size of the Current Steps in Microwave-Irradiated Josephson Junctions" (with A. B. Zorin). *Pis`ma Zh. Tekhn. Fiz.* **6**, No. 2, pp. 96-101 (1980) [*Sov. Phys.-Techn. Phys. Lett.* **6**, No. 1, p. 43 (1980)].

86. "Impedance of a Josephson Junction with Small Capacitance" (with A. B. Zorin). *Radiotekhnika i Elektronika* **26**, No. 4, p. 834 (1981) [*Radio Eng. and Electron Phys.* **26**, No. 4 (1981)].

87. "Pulses with Preoscillations in a Time-Delay Structure with a Josephson Junction" (with V. K. Kornev). *Radiotekhnika i Elektronika* **25**, No. 3, 656-659 (1980) - in Russian.

88. "Performance Limits of Wideband Mixer Using the Externally Pumped Josephson Junction" (with V.P. Zavaleev). *Radiotekhnika i Elektronika* **26**, No. 7, pp. 1554-1563 (1981) [*Radio Eng. and Electron Phys.* **26**, No. 7 (1981)].

89. "Mutual Phase Locking of Josephson Junctions" (with L. S. Kuzmin and G. A. Ovsyannikov). *Radiotekhnika i Elektronika* **26**, No. 5, pp. 1067-1076 (1981) [*Radio Eng. and Electron Phys.* **26**, No. 5 (1981)]; *IEEE Trans. Magn*. **17**, No. 1, pp. 111-114 (1981).

90. "Dynamic and Fluctuational Parameters of DC SQUIDs" (with V. V. Danilov). *Radiotekhnika i Elektronika* **26**, No. 4, pp. 842-851 (1981) [*Radio Eng. and Electron Phys.* **26**, No. 4, pp. 122-129 (1981)].

91. "DC SQUID as a Microwave Generator" (with V. V. Danilov). *Radiotekhnika i Elektronika* **26**, No. 7, pp. 1545-1553 (1981) [*Radio Eng. and Electron Phys*. **26**, No. 7 (1981)].

92. "Microwave Receivers Using SQUIDs and Josephson Junction Arrays" (with L. S. Kuzmin and V. V. Migulin). *IEEE Trans. Magn.* **17**, No. 1, pp. 822-825 (1981).

93. Dynamics of the Long Josephson Junctions" (with V. K. Semenov, S. A. Vasenko). *IEEE Trans. Magn.* **17**, No. 1, pp. 800-803 (1981); *Zh. Eksp. Teor. Fiz.* **81**, No. 4, pp. 1444-1455 (1981) [*Sov. Phys.-JETP* **54**, p. 766 (1981)].

94. "Macroscopic Quantum Tunneling and Dissipation in Josephson Junctions and SQUIDs". *Physica* **108B**, No. 1, pp. 1079-1080 (1981).

95. "Influence of Effective Electron Interaction on Critical Current of Josephson Weak Links" (with M. Yu. Kupriyanov and V. F. Lukichev).

    (a) *Physica* **108B**, No. 1-3, pp. 1001-1002 (1981).
    (b) *Zh. Eksp. Teor. Fiz.* **83**, No. 1, pp. 431-441 (1982) [Sov. Phys. JETP, **56**, No. 1, pp. 235-240 (1982)].

96. "Classical and Quantum Limitations on Energy Consumption in Computation". *Int. J. Theor. Phys*. **21**, No. 2/3, pp. 311-326 (1982).

97. "Low Frequency Behavior of Coupled Josephson Junctions Near Phase Locking" (with A. K. Jain *et al*.). *Appl. Phys. Lett*. **41**, No. 6, p. 566 (1982).

98. "Effect of Boundary Conditions upon the Phase Distribution in Two-Dimensional Josephson Junctions" (with A. Barone *et al*.). *J. Appl. Phys.* **53**, No. 8, pp. 5802-5809 (1982).

99. "Quantum Noise in SQUIDs" (with V. V. Danilov and A. B. Zorin). *IEEE Trans. Magn.* **19**, No. 3, pp. 572-575 (1983).

100. "Quantum Noise in Josephson-Effect Parametric Amplifiers" (with L. S. Kuzmin, V. V. Migulin, and A. B. Zorin). *IEEE Trans. Magn.* **19,** No. 3, pp. 618-621 (1983).

101. "Dynamics of Josephson Tunnel Junctions with a Finite-Width Riedel Peak" (with S. I. Turovets and A. B. Zorin). *IEEE Trans. Magn*. **19**, No. 3, pp. 629-632 (1983).

102. "Magnetic Field Distribution in Two-Dimensional Josephson Junctions" (with S. A. Vasenko and V. K. Semenov). *IEEE Trans. Magn*. **19**, No. 3, pp. 1027-1030 (1983); *Zh. Eksp. Teor. Fiz.* **86**, pp. 1132-1140 (1984) [Sov. Phys.-JETP **59**, p. 662 (1984)].

103. "Ultimate Sensitivity of Microwave Mixers Using Superconducting Tunnel Junctions" (with A. B. Zorin). *Radiotekhnika i Elektronika* **30**, No. 6, pp. 1200-1210 (1985) [*Radio Eng. and Electron Phys*. **30**, No. 6 (1985)].

104. "A Possible Standard of Current Based on the Secondary Quantum Macroscopic Effects in Superconductivity" (with A. B. Zorin). *Preprint No. 7/1984*, Department of Physics, Moscow State University.

105. "Bloch Oscillations in the Small Josephson Junctions" (with A. B. Zorin). In: *Proc. LT-17: Contributed Papers*. ed. by U. Eckern *et al*., pp. 1153-1154 (1984).

106. "Bloch Oscillations in the Small Josephson Junctions: Possible Fundamental Standard of DC Current and Other Applications", (with A. B. Zorin). *IEEE Trans. Magn.* **21**, No. 2, pp. 943-946 (1985).

107. "Order Parameter Concept, and Phase Transitions in Linear Arrays of Josephson Junctions" (with W. Krech and K.-H. Bertel). In: *Proc. LT-17: Contributed Papers*, ed by U. Eckern *et al*., pp. 909-910 (1984).

108. "Superconducting Properties of the Granular Pb-Bi-Alloy Variable-Thickness Microbridges" (with O. V. Snigirev and E. S. Soldatov). In: *Proc. LT-17: Contributed Papers,* ed by U. Eckern *et al.,* pp. 915-916 (1984).

109. "Electronic Simulation of Multi-Josephson-Junction Circuits" (with V. K. Kornev and K. Yu. Platov). *IEEE Trans. Magn*. **21**, No. 2, pp. 586-589 (1985).

110. "Reversible Conveyer Computation in Array of Parametric Quantrons" (with S. V. Rylov and V. K. Semenov). *IEEE Trans. Magn.* **21**, No. 2, pp. 947-950 (1985).

111. "Theory of the Bloch-Wave Oscillations in Small Josephson Junctions" (with A. B. Zorin). *J. Low Temp. Phys.* **59**, No 5/6, pp. 347-382 (1985).

112. "Probable Coherent Oscillations at Single-Electron Tunneling" (with D. V. Averin). In: *SQUID`85*, ed. by H.-D. Hahlbohm and K. Lübbig, W. de Gruyter, Berlin, pp. 197-200 (1985).

113. "Quantum Fluctuations at Quadratic Videodetection of Microwave Radiation Using Superconducting Junctions" (with I.A. Devyatov and A.B. Zorin). *Ibid*, pp. 1011-1016 (1985).

114. "Mutual Phase Locking in Arrays of the Josephson Tunnel Junctions" (with V. K. Kornev *et al.*). *Ibid*, 1059-1064 (1985).

115. "X-band Parametric Amplifier and Microwave SQUID Using Single-Tunnel-Junction Superconducting Interferometer" (with L.S. Kuzmin *et al.*). *Ibid*, pp. 1023-1034 (1985).

116. "Resistive Single Flux Quantum Logics for the Josephson- Junction Digital Technology" (with O. A. Mukhanov and V.K. Semenov). *Ibid*, pp. 1103-1108 (1985).

117. "Coulomb Blockade of Tunneling, and Coherent Oscillations in Small Tunnel Junctions" (with D. V. Averin). *J. Low Temp. Phys.* **62**, No. 3/4, pp. 345-372 (1986).

118. "High-Performance Edge-Type Josephson Junctions Nb-Si*-Nb" (with A. L. Gudkov and V. I. Makhov). *Pis`ma Zh. Tekhn. Fiz.* **11**, No. 23, pp. 1423-1427 (1985) [*Sov. J. Techn. Phys*. *Lett.* **11**, No. 12, p. 1423 (1985)].

119. "Single-Electron Transistors: Electrostatic Analogs of the DC SQUIDs". *IEEE Trans. Magn.* **23**, No. 2, pp. 1142-1145 (1987).

120. "New Results of the Theory of SET and Bloch Oscillations in Small Tunnel Junctions". *IEEE Trans. Magn*. **23**, No. 2, pp. 1138-1141 (1987).

121. "Experimental Study of Mutual Phase Locking in Josephson Tunnel Junctions" (with L. S. Kuzmin and E. S. Soldatov). *IEEE Trans. Magn*. **23**, No. 2, pp. 1051-1053 (1987).

122. "Experimental Realization of a Resistive Single Flux Quantum Logic Circuit" (with V. P. Koshelets *et al*.). *IEEE Trans. Magn.* **23**, No. 2, pp. 755-758 (1987).

123. "Ultimate Performance of the RSFQ Logic Circuits" (with O.A. Mukhanov and V. K. Semenov). *IEEE Trans. Magn.* **23**, No. 2, pp. 759-762 (1987).

124. "Josephson A/D Converters Using Differential Coding" (with S.V. Rylov and V. K. Semenov). *IEEE Trans. Magn.* **23**, No. 2, pp. 735-738 (1987).

125. "Effect of Dimensions of Josephson Junctions on Their Macroscopic Quantum Properties" (with S. A. Vasenko). *Fiz. Nizk. Temp.* **13**, No. 7, 755-758 (1987) [*Sov. J. Low Temp. Phys*. **13**, No. 7, 432 (1987)].

126. "Direct Observation of the Correlated Discrete Single-Electron Tunneling" (with L. S. Kuzmin). *Pis`ma Zh. Eksp. Teor. Fiz.* **45**, No. 8, pp. 389-390 (1987) [*JETP Lett.* **45**, No. 8, pp. 495-496 (1987)]; *Jpn. J. Appl. Phys.* **26** (Suppl. 3), pp. 1387-1389 (1987).

127. "Microscopic Structure and Contact Properties of the High-T_c Super-conducting Ceramics (with A. V. Varlashkin *et al*.). *Pis'ma Zh. Eksp. Teor. Fiz.* **46** (suppl.), pp. 59-62 (1987) [*JETP Lett.* **46** (suppl.), p. S52 (1987)]; In: Ext. Abstr. ISEC'87, Tokyo, p. 410 (1987).

128. "Simultaneous Quantization of Current and Voltage in Small Super-conducting Tunnel Structures" (with A. B. Zorin). *Jpn. J. Appl. Phys.* **26** (Suppl. 3), 1407-1408 (1987).

129. "Electrical, Magnetic and Structure Properties of the YBaCuO Single Crystals" (with L. Z. Avdeev *et al*.). *Pis`ma Zh. Eksp. Teor. Fiz.* **46**, No. 5, pp. 196-199 (1987) [*JETP Lett.* **46**, No. 5 (1987)].

130. "Experimental Study of the RSFQ Logic Circuits" (with V. K. Kaplunenko *et al.*). In: *Ext. Abstr. ISEC'87*, Tokyo, pp. 127-130 (1987).

131. "DC Powered Parametric Quantron" (with S. V. Rylov and V. K. Semenov). *Ibid*, pp. 135-137 (1987).

132. "Possible Logic Circuits Based on the Correlated Single-Electron Tunneling in Ultrasmall Junctions" (with V.K. Semenov). *Ibid,* pp. 182-185 (1987).

133. "Properties of Josephson Junctions with an Amorphous Silicon Interlayer" (with A. L. Gudkov and M. Yu. Kupriyanov). *Zh. Eksp. Teor. Fiz.* **94**, No. 7, pp. 319-332 (1988) [*Sov. Phys. - JETP* **68**, No. 1, p. 1478 (1988)].

134. "Josephson Effect and Macroscopic Quantum Interference in High-T_c Superconducting Thin-Film Weak Links at 77 K" (with A. I. Golovashkin *et al.*). *Pis'ma Zh. Tekhn. Fiz.* **14**, No. 14, 1256-1260 (1988) [*Sov. Techn. Phys. Lett.* **14**, No. 7, 549 (1988); IEEE Trans. Magn. **25**, No. 2, 943-945 (1989).

135. "Magnetic Properties and Critical Current of Superconducting Thin Films RBaCuO (R = Y, Eu, Ho)" (with L. Z. Avdeev *et al*.). *Pis'ma Zh. Eksp. Teor. Fiz.* **47**, No. 10, pp. 508-510 (1988) [*JETP Lett.* **47**, No. 10, p. 594 (1988)].

136. "Reproduction of the Single Flux Quantum Pulses in Josephson Junction Systems" (with O. A. Mukhanov and V. K. Semenov). *Mikroelektronika* **17**, No. 2, pp. 147-154 (1988) [*Sov. Microelectronics* **17**, No. 2 (1988)].

137. "Single-Electron Tunnel Junction Array: An Electrostatic Analog of the Josephson Transmission Line" (with N. S. Bakhvalov *et al*.). *IEEE Trans. Magn.* **25**, No. 2, 1436-1439 (1989); *Zh. Eksp. Teor. Fiz.* **95**, No. 3, pp. 1010-1021 (1989) [*Sov. Phys.- JETP* **68**, No. 3, pp. 581-587 (1989)].

138. "Experimental Study of the RSFQ Logic Elements" (with V. K. Kaplunenko *et al*.). *IEEE Trans. Magn.* **25**, No. 2, pp. 1436-1439 (1989).

139. "Single-Electron Charging Effects in 1-D Arrays of Ultrasmall Tunnel Junctions" (with L. S. Kuzmin *et al*.). *Phys. Rev. Lett.* **62**, No. 21, pp. 2539-2541 (1989).

140. "Superconducting Electronics: New Prospects" (with V. K. Semenov and A. B. Zorin). *IEEE Trans. Magn.* **25**, No. 2, pp. 1290-1293 (1989).

141. "Single-Electron Charging Effects in Arrays of Ultra-Small Tunnel Junctions" (with L. S. Kuzmin *et al*.). In: *Ext. Abstr. ISEC'89*, Tokyo, pp. 549-552 (1989).

142. "Effect of High-Frequency Environment on the Single Electron Tunneling in Ultrasmall Junctions" (with P. Delsing *et al*.). *Phys. Rev. Lett.* **63**, No. 11, pp. 1180-1184 (1989).

143. "Two Fundamental Results from Low-Temperature Experiments with One-Dimensional Arrays of Ultrasmall Tunnel Junctions" (with T. Claeson *et al*.). In: *Proc. of 3rd Int. Conf. on Found. of Quantum Mechanics (ISQM-Tokyo'89*), pp. 255-262 (1989).

144. "Time-Correlated Single-Electron Tunneling in One-Dimensional Arrays of Ultrasmall Tunnel Junctions" (with P. Delsing *et al*.). *Phys. Rev. Lett*. **63**, No. 17, pp. 1861-1865 (1989).

145. "Statics and Dynamics of Single-Electron Solitons in Two-Dimensional Arrays of Ultrasmall Tunnel Junctions" (with N.S. Bakhvalov *et al.*), *Physica B* **173**, pp. 319-328 (1991).

146. "Two Ways Toward Experimental Observation of the Bloch Oscillations in Ultrasmall Josephson Junctions" (with A. B. Zorin and L. S. Kuzmin). *Physica B* **165&166**, pp. 933-934 (1990).

147. "Single-Electron Charging of the Quantum Wells and Dots" (with A. N. Korotkov and D. V. Averin). *Physica B* **165&166**, pp. 927-928 (1990).

148. "Experimental Implementation of an Analog-to-Digital Converter Based on the Reversible Ripple Counter" (with L. V. Filippenko *et al.*). *IEEE Trans. Magn.* **27**, No. 2, pp. 2464-2467 (1990).

149. "Observation of the Single-Electron-Tunneling Oscillations" (with P. Delsing *et al*.). *Phys. Rev. B* **42**, No. 12, pp. 7439-7453 (1990).

150. "1-D Array Implementation of the Resistively-Coupled Single-Electron Transistor" (with P. Delsing *et al.*). *IEEE Trans. Magn*. **27**, No. 2, pp. 2581-2584 (1991).

151. "Towards the Quantitative Theory of the High-T_C Josephson Junctions" (with M. Yu. Kupriyanov). *IEEE Trans. Magn.* **27**, No. 2, pp. 2460-2463 (1991).

152. "Single-Electron Transistors as Ultrasensitive Electrometers" (with A. N. Korotkov and S. A. Vasenko). In: *Single-Electron Tunneling and Mesoscopic Devices*, ed. by H. Koch and H. Lübbig, Springer, Berlin, 45-60 (1992).

153. "New Results on SET-Oscillations in One-Dimensional Arrays of Tunnel Junctions" (with P. Delsing *et al.*). In: *Single-Electron Tunneling and Mesoscopic Devices*, ed. by H. Koch and H. Lübbig, Springer, Berlin, 97-103 (1992).

154. "Wigner Lattice Dynamics and SET Oscillations in 1D Electron Channels" (with D. V. Averin). In: *Nanostructures and Mesoscopic Systems*, ed. by W. Kirk and M. Reed, Acad. Press, Boston, pp. 283-295 (1992).

155. "Theory of Single-Electron Charging of the Quantum Wells and Dots" (with D. V. Averin and A. N. Korotkov). *Phys. Rev. B* **44**, No. 12, pp. 6199-6211 (1991).

156. "Experimental Evidence for the Coulomb Blockade of Cooper Pair Tunneling and Bloch Oscillations in Single Josephson Junctions" (with D. Haviland *et al.*). *Z. Phys. B* **85**, No. 2, pp. 339-347 (1991).

157. "New RSFQ Circuits" (with S. V. Polonsky *et al*.). *IEEE Trans. on Appl. Supercond*. **3**, No. 1, pp. 2566-2577 (1993).

158. "Single-Electron Quantization of Electric Field Domains in Slim Semiconductor Superlattices". *Appl. Phys. Lett.* **62**, No. 24, pp. 3282-3284 (1993).

159. "Combined Bloch and Single-Electron Tunneling Oscillations in One-Dimensional Arrays of Small Tunnel Junctions" (with A. N. Korotkov and D. V. Averin). Physica B **194-196**, pp. 1333-1334 (1994). *Phys. Rev. B* **49**, No. 3, pp. 1915-1918 (1994).

160. "Development of Sensitive SFQ-Counting Converter" (with J. C. Lin *et al*.). In: *Ext. Abstr. ISEC'93*, NIST, Boulder, CO, pp. 90-91 (1993).

161. "Photoresponse and Photosensitivity of Single-Electron Tunneling Systems" (with I. A. Devyatov). *Physica B* **194-196**, pp. 1341-1342 (1994).

162. "Single Electron Tunneling in Single Junctions and Multi-Junction Systems" (with P. D. Dresselhaus *et al*.). *Physica B* **194-196**, pp. 1335-1336 (1994).

163. "Single-Electron Coulomb Exclusion on the Atomic Level" (with D. V. Averin *et al*.). *Appl. Phys. Lett.* **64**, No. 1, pp. 126-128 (1994).

164. "Statistical Properties of Continuous-Wave Bloch Oscillations in Double-Well Semiconductor Heterostructures" (with A. N. Korotkov and D. V. Averin). *Phys. Rev.* **B 49**, No. 11, pp. 7548-7556 (1994).

165. "Measurement of Single Electron Lifetimes in a Multijunction Trap" (with P. Dresselhaus *et al.*). *Phys. Rev. Lett.* **72**, No. 16, pp. 3226-3229 (1994).

166. "TASERs: Possible DC-Powered Terahertz Lasers Using Interwell Transitions in Semiconductor Heterostructures" (with A. N. Korotkov and D. V. Averin). *Appl. Phys. Lett.* **65**, No. 15, pp. 1865-1867 (1994).

167. "Comparison of Single Electron Traps in the Superconducting and Normal States" (with J. E. Lukens *et al*.). *Physica B* **203**, pp. 354-360 (1994).

168. "High-Speed Single-Flux-Quantum Circuit Using Planarized Niobium-Trilayer Josephson Junction Technology" (with P. I. Bunyk *et al.*). *Appl. Phys. Lett*. **66**, No. 5, pp. 646-648 (1995).

169. "Design of SFQ-Counting Analog-to-Digital Converter" (with J. C. Lin and V. K. Semenov). *IEEE Trans. Appl. Supercond.* **5**, No. 2, pp. 2252-2259 (1995).

170. "Rapid Single Flux Quantum Random Access Memory" (with S. V. Polonsky *et al*.). *IEEE Trans. Appl. Supercond.* **5**, No. 2, pp. 3000-3005 (1995).

171. "Signal Resolution of RSFQ Comparators" (with T. V. Filippov *et al*.). *IEEE Trans. Appl. Supercond.* **5**, No. 2, pp. 2240-2243 (1995).

172. " Numerical Study of the Dynamics and Statistics of Single Electron Systems" (with L. R. C. Fonseca *et al*.). *J. Appl. Phys*. **78,** No. 5, pp. 3238-3251 (1995); "SENECA: a new program for the analysis of single-electron devices", *VLSI Design* **6**, No. 1-4, pp. 57-60 (1998).

173. "Possible Performance of Capacitively-Coupled Single-Electron Transistors in Digital Circuits" (with R. H. Chen and A. N. Korotkov). *J. Appl. Phys.* **78**, No. 4, pp. 2520-2530 (1995).

174. "Electron-Electron Interaction in Linear Arrays of Small Tunnel Junctions" (with K. Matsuoka). *Appl. Phys. Lett*. **67,** No. 21, pp. 3037-3039 (1995).

175. "All-High-T_c Superconductor Rapid-Single-Flux-Quantum Circuit Operating at ~30 K" (with S. Shokhor *et al.*). *Appl. Phys. Lett*. **67**, No. 19, pp. 2869-2871 (1995).

176. "Analysis of Q_0-independent single-electron systems" (with A. N. Korotkov). In: *Abstr. of Int. Workshop on Comput. Electron.* (Tampe, AZ, Oct. 30 - Nov. 2, 1995), p. 42.

177. "Ultradense Hybrid SET/FET Dynamic RAM: Feasibility of Background-Charge-Independent Room-Temperature Single-Electron Digital Circuits" (with A. N. Korotkov). In: *Proc. ISDRS'95*, pp. 355-358 (1995); *VLSI Design* **6**, pp. 341-344 (1998).

178. "Single-Electron Parametron: Reversible Computation in a Discrete State System" (with A.N. Korotkov). *Science* **273**, No. 5276, pp. 763-765 (1996); *VLSI Design* **6**, pp. 43-46 (1998).

179. "A Numerical Study of the Accuracy of Single-Electron Current Standards" (with L. R. C. Fonseca and A. N. Korotkov), *J. Appl. Phys*. **79**, No. 12, pp. 9115-9125 (1996).

180. "Single-Electron-Transistor Logic" (with R. H. Chen and A. N. Korotkov). *Appl. Phys. Lett*. **68**, No. 14, pp. 1954-1956 (1996).

181. "Accuracy of the Single-electron Pump Using an Optimized Step-like RF Drive Waveform" (with L. R. C. Fonseca and A. N. Korotkov), *Appl. Phys. Lett.* **69**, No. 13, pp. 1858-1860 (1996).

182. "Hybrid Technology Multithread Architecture" (with G. Gao *et al*.). In: *Proc. of 6th Symp. on the Frontiers of Massively Parallel Computation* (*Frontiers '96*), IEEE Comput. Soc. Press, pp. 98-105 (1996).

183. "Feasibility Study of RSFQ-based Self-Routing Nonblocking Digital Switches" (with D.Yu. Zinoviev). *IEEE Trans. on Appl. Supercond.* **7**, No. 2, 3155-3163 (1997).

184. "SFQ Balanced Comparators at Finite Sampling Rate" (with V. K. Semenov *et al*.). *IEEE Trans. on Appl. Supercond.* **7**, No. 2, 3617-3621 (1997).

185. "Single Electron Traps: A Quantitative Comparison of Theory and Experiment" (with K. A. Matsuoka *et al*.). *J. Appl. Phys*. **81**, No. 5, p. 2269 (1997).

186. "Effect of Screening on Shot Noise of Diffusive Mesoscopic Conductors" (with Y. Naveh and D. Averin). *Phys. Rev. Lett.* **79**, No. 18, pp. 3482-3485 (1997).

187. "Nanoscale Field-Effect Transistors: An Ultimate Size Analysis" (with F. Pikus). *Appl. Phys. Lett*. **71**, No. 25, pp. 3661-3663 (1997).

188. "Multiple-Junction Single-Electron Transistors for Digital Applications" (with R. Chen). *Appl. Phys. Lett.* **72**, No. 1, pp. 61-63 (1998).

189. "Noise Properties and AC Conductance of Mesoscopic Diffusive Conductors with Screening" (with Y. Naveh and D. Averin). *Phys. Rev.* ***B*** **59**, No. 4, pp. 2848-2860 (1999).

190. "Shot Noise of Single-electron Tunneling in One-dimensional Arrays" (with K. A. Matsuoka). *Phys. Rev. B* **57**, No. 24, pp. 15613-15622 (1998).

191. "Shot Noise in Diffusive Conductors: A Quantitative Analysis of Electron-Phonon Interaction Effects" (with Y. Naveh and D. Averin). *Phys. Rev. B* **58**, No. 23, pp. 15371-15374 (1998).

192. "Single-Electron-Parametron-Based Logic Devices" (with A. N. Korotkov). *J. Appl. Phys*. **84**, No. 11, pp. 6114-6126 (1998).

193. "Layered Tunnel Barriers for Nonvolatile Memory Devices". *Appl. Phys. Lett.* **73**, No. 15, pp. 2137-2139 (1998).

194. "Superconductor Digital Frequency Divider Operating up to 750 GHz" (with W. Chen *et al*.). *Appl. Phys. Lett.* **73**, No. 19, pp. 2817-2819 (1998).

195. "Rapid Single Flux Quantum T-Flip Flop Operating up to 770 GHz" (with W. Chen *et al*.). *IEEE Trans. on Appl. Supercond.* **9**, No. 2, pp. 3212-3215 (1999).

196. "RSFQ Front-end for a Software Radio Receiver" (with E. B. Wikborg and V. K. Semenov). *IEEE Trans. on Appl. Supercond.* **9**, No. 2, pp. 3615-3618 (1999).

197. "Pulse Jitter and Timing Errors in RSFQ Circuits" (with A. V. Rylyakov). *IEEE Trans. on Appl. Supercond*. **9**, No. 2, pp. 3539-3544 (1999).

198. "CNET: RSFQ Switching Network for Petaflops-Scale Computing" (with L. Wittie, D. Yu. Zinoviev, and G. Sazaklis). *IEEE Trans. on Appl. Supercond.* **9**, No. 2, pp. 4034-4039 (1999).

199. "COOL-0: Design for RSFQ Subsystem for Petaflops Computing" (with M. Dorojevets, P. Bunyk, and D. Zinoviev). *IEEE Trans. on Appl. Supercond.* **9**, No. 2, pp. 3606-3614 (1999).

200. "Shot Noise Suppression in Multimode Ballistic Fermi Conductors" (with Y. Naveh and A. N. Korotkov). *Phys. Rev. B* **60**, No. 4, pp. R2169-2172 (1999).

201. "Possible Cooling by Resonant Fowler-Nordheim Emission" (with A. N. Korotkov). *Appl. Phys. Lett.,* **75**, No. 16, pp. 2491-2493 (1999); *Physica B* **284-288**, pp. 2030-2031 (2000).

202. "Resonant Fowler-Nordheim Tunneling and its Possible Applications" (with A. N. Korotkov). In: *IEDM Techn. Dig.*, pp. 223-226 (1999).

203. "Shrinking Limits of Silicon MOSFETs: Numerical Study of 10-nm-scale Devices" (with Y. Naveh). *Superlatt. and Microstruct.* **27**, No. 2/3, pp. 111-123 (2000).

204. "Superconductor Electronic Devices for Petaflops Computing" (with M. Dorojevets *et al.*). *FED Journal* **10**, No. 3, pp. 3-14 (2000) – in Japanese.

205. "COOL-1: The Next Step in RSFQ Computer Design" (with M. Dorojevets *et al*.). *Physica B* **280**, pp. 495-496 (2000).

206. "Modeling of 10-nm-scale Ballistic MOSFETs" (with Y. Naveh). *IEEE Electron. Dev. Lett.* **21**, No. 5, pp. 242-244 (2000).

207. "Shot Noise Suppression at 1D Hopping" (with A. N. Korotkov). *Phys. Rev. B* **61**, No. 23, pp. 15975-15987 (2000).

208. "Universal Distribution of Transparencies in Highly Conductive Nb/AlO_x/Nb junctions" (with Y. Naveh *et al.*). *Phys. Rev. Lett.* **85**, No. 25, pp. 5404-07 (2000).

209. "Composite Flux/Charge Qubit". In: *Proceeding of PIERS 2000*, The Electromagnetics Academy, Cambridge, MA, p. 891 (2000).

210. "Cooling by Resonant Fowler-Nordheim Emission through A-few-nm-thick Films" (with A. N. Korotkov). In: *Heat Transfer and Transport Phenomena in Microscale*, ed. by G. P. Celata, Begell House, New York, pp. 331-334 (2000).

211. "Shot Noise Suppression at 2D Hopping" (with V. Sverdlov and A. Korotkov). *Phys. Rev. B* **63**, No. 8, pp. R081302 1-4 (2000).

212. "Physics of High-j_c Josephson Junctions and Prospects of their RSFQ VLSI Applications" (with Y. Naveh and D. Averin). *IEEE Trans. on Appl. Supercond.* **11**, No. 1, pp. 1056-1060 (2001).

213. "Single-electron Soliton Avalanches in Tunnel Junction Arrays" (with V. Sverdlov, D. Kaplan, and A. Korotkov), *Phys. Rev. B* **64,** No. 4, pp. R041302 1-4 (2001).

214. (a) "Single-Electron Latching Switches as Nanoscale Synapses" (with S. Fölling and Ö. Türel). In*: Proc. of the Int. Joint Conference on Neural Networks* (Int. Neural Network Society, Mount Royal, NY), pp. 216-221 (2001);

(b) "Self-Evolving Neuromorphic Networks with Single-Electron Switching Latches as Synaptic Nodes" (with S. Fölling and Ö. Türel). In*: Proc. of the 15th Eur. Conf. on Circuit Theory and Design*, vol. 1 (Helsinki Univ. of Technology, Espoo, Finland), pp. I-177-180 (2001).

215. "Nanoscale SOI Ballistic MOSFETs: An Impending Power Crisis" (with V. Sverdlov and Y. Naveh). In: *Proc. of 2001 IEEE Int. SOI Conf.* (IEEE, Piscataway, NJ), pp. 151-152 (2001).

216. (a) "Temperature Scaling of Nanoscale Silicon MOSFETs" (with V. Sverdlov and Y. Naveh). *J. de Phys. IV* **12**, No. Pr3, pp. 19-22 (2002);

(b) "Temperature Scaling of CMOS Circuit Power Consumption" (with V. Sverdlov and Y. Naveh). *Physica E* 18, No. 1-2, pp. 151-152 (2002).

217. "Sub-electron Transport in Single-electron-tunneling Arrays" (with D. Kaplan and V. Sverdlov). *Phys. Rev. B* **65**, No. 19, art. 193309 (2002).

218. "Quantum Fluctuations in Josephson Junction Comparators" (with T. J. Walls and T. V. Filippov). *Phys. Rev. Lett.* **89**, No. 21, art. 217004 (2002).

219. "Effective Boundary Conditions for Carriers in Ultrathin SOI Channels" (with V. Sverdlov and X. Oriols). IEEE Trans. on Nanotechnology **2**, No. 1, 59-63 (2003).

220. "CrossNets: Possible Neuromorphic Networks Based on Nanoscale Components" (with Ö. Türel). *Int. J. of Circuit Theory and Applications* **31**, No. 1, pp. 37-53 (2003).

221. "Tunneling Properties of Barriers in Nb/Al/AlO_x/Nb junctions" (with S. K. Tolpygo *et al.*). *IEEE Trans. on Appl. Supercond.* **13**, No. 2, pp. 99-102 (2003).

222. (a) "MOSFETs Below 10 nm: Quantum Theory" (with T. J. Walls and V. A. Sverdlov). *Physica E* **19**, No. 1-2, pp. 23-27 (2003);

(b) "Nanoscale Silicon MOSFETs: A Theoretical Study" (with V. A. Sverdlov and T. J. Walls). *IEEE Trans. on Electron Devices* **50**, No. 9, pp. 1926-1933 (2003).

223. (a) "CrossNets: Neuromorphic Networks for Nanoelectronic Implementation" (with Ö. Türel). *Lect. Notes on Comp. Sci.* **2714**, pp. 753-760 (2003).

(b) "Possible Neuromorphic Implementation of Neuromorphic Networks" (with Ö. Türel and I. Muckra). In: *Proc. of the Int. Joint Conf. on Neural Networks* (Portland, OR), pp. 365-370 (2003).

224. "Coulomb Gap, Coulomb Blockade, and Dynamic Activation Energy in Frustrated Single-Electron Arrays" (with D. Kaplan and V. Sverdlov). *Phys. Rev. B* **68**, No. 4, pp. 045321 1-6 (2003).

225. "Quantum Mechanical Modeling of Advanced Sub-10-nm MOSFETs" (with T. J. Walls and V. A. Sverdlov). In: *Proc. of IEEE NANO*, pp. 338 1-4 (2003).

226. "Shot Noise in Frustrated Single-Electron Arrays" (with D. Kaplan and V. Sverdlov). *Appl. Phys. Lett.* **83**, No. 13, pp. 2662-2664 (2003).

227. "Shot Noise at 2D Hopping" (with Y. A. Kinkhabwala, V. A. Sverdlov, and A. N. Korotkov). *J. Phys. Soc. Jpn.* **72**, Suppl. A, pp. 149-150 (2003).

228. "Nanoelectronic Neuromorphic Networks (CrossNets): New Results" (with Ö. Türel, J. H. Lee, and X. Ma). In: *Proc. of Int. Joint Conf. on Neural Networks* (Budapest, Hungary), pp. 389-394 (2004);

229. "Nanoscale SOI MOSFETs: A Comparison of Two Options" (with T. J. Walls and V. A. Sverdlov), *Solid State Electronics* **48**, No. 6, pp. 857-865 (2004).

230. "Aluminum Oxide Layers as Possible Components for Layered Tunnel Barriers" (with E. Cimpoiasu *et al*.). *J. Appl. Phys*. **96**, No. 2, pp. 1088-1093 (2004).

231. "Architectures for Nanoelectronic Implementation of Artificial Neural Networks: New Results" (with Ö. Türel, J. H. Lee, and X. Ma). *Neurocomputing* **64**, No. 1, pp. 271-283 (2005).

232. "Prospects for Terabit-scale Nanoelectronic Memories" (with D. B. Strukov). *Nanotechnology* 16, No. 1, pp. 137-148 (2005).

233. "CMOL FPGA: A Reconfigurable Architecture for Hybrid Digital Circuits with Two-terminal Nanodevices" (with D. B. Strukov). *Nanotechnology* **16**, No. 6, pp. 888-900 (2005).

234. "CrossNets as Pattern Classifiers (with J. H. Lee). *Lecture Notes in Computer Science* **3512**, pp. 446-454 (2005).

235. "Nanoscale SOI MOSFETs: In Search for the Best Geometry" (with J. Li and T. J. Walls). In: *SOI Technology and Devices XII*, ed. by G. K. Celler, ECS, Pennington, NJ, pp. 11-20 (2005).

236. "A Numerical Study of Transport and Shot Noise at 2D Hopping" (with Y. A. Kinkhabwala, V. A. Sverdlov, and A. N. Korotkov), *J. Phys.: Condens. Mat*. **18**. No. 6, pp. 1999-2012 (2006).

237. "A Numerical Study of Coulomb Interaction Effects on 2D Hopping Transport" (with Y. A. Kinkhabwala and V. A. Sverdlov), *J. Phys.: Condens. Mat.* **18**, No. 6, pp. 2013-2027 (2006).

238. "Sub-electron Charge Relaxation via 2D Hopping Conductors" (with Y. Kinkhabwala), *J. Phys.: Condens. Mat.* **18**, No. 20, pp. 4895-4905 (2006).

239. "A Reconfigurable Architecture for Hybrid CMOS/Nanodevice Circuits" (with D. B. Strukov). In: *Proc. FPGA'06*, pp. 131-140 (2006).

240. "Global Reinforcement Learning in Neural Networks with Stochastic Synapses" (with X. Ma). In: *Proc. IJCNN'06*, pp. 47-53 (2006).

241. "In Situ Training of CMOL CrossNets" (with J. H. Lee). In: *Proc. IJCNN'06*, pp. 5026-5034 (2006).

242. "Fabrication and characterization of novel crosspoint structures for molecular electronic integrated circuits" (with W. Chen *et al.*). *J. Vac. Sci. Technol.* B **24**, No. 6, pp. 3217-3220 (2006).

243. "CMOL FPGA Circuits" (with D. B. Strukov). In: *Proc. of WorldComp'06/CDES'06*, pp. 213-219 (2006).

244. "Architectures for Defect-Tolerant Nanoelectronic Crossbar Memories" (with D. B. Strukov). *J. of Nanoscience and Nanotechnology* **7**, No. 1, pp. 151-167 (2007).

245. "Global Reinforcement Learning in Stochastic Neural Networks" (with X. Ma). *IEEE Trans. on Neural Networks* **18**, No. 2, pp. 573-577 (2007).

246. "High-Quality Aluminum Oxide Tunnel Barriers for Scalable, Floating-Gate Random-Access Memories (FGRAM)" (with X. Liu *et al.*). In *Proc. ICMTD'07*, pp. 235-237 (2007).

247. "Defect-tolerant Nanoelectronic Pattern Classifiers" (with J. H. Lee). *Int. J. of Circuit Theory and Applications* **35**, No. 3, pp. 239-264 (2007).

248. "Reconfigurable Hybrid CMOS/Nanodevice Circuits for Image Processing" (with D. B. Strukov). *IEEE Trans. on Nanotechnology* **6**, No. 6, pp. 696-710 (2007).

249. (a) "CMOL Technology Development Roadmap" (with D. B. Strukov). In: *Proc. of the 4th Workshop on Non-Silicon Computing*, pp. 73-80 (2007).

(b) "Prospects for the Development of Digital CMOL Circuits" (with D. B. Strukov). In: *Proc. of IEEE/ACM Symp. on Nanoscale Architectures* (*NanoArch'07*), pp. 109-116 (2007).

250. "Josephson Junction Comparator as a Quantum-Limited Detector for Flux Qubit Readout" (with T. J. Walls and D. V. Averin). *IEEE Trans. on Appl. Supercond.* **17**, pp. 136-141 (2007).

251. "Negative Differential Resistance at Sequential Single-Electron Tunneling through Atoms and Molecules" (with N. Simonian and J. Li). *Nanotechnology* **18**, art.. 424006, pp. 1-11 (2007).

252. "Hybrid Semiconductor/Nanoelectronic Circuits: Freeing Advanced Lithography from the Alignment Accuracy Burden". *J. Vac. Sci. Technol. B* **25**, No. 6, pp. 2531-2536 (2007).

253. "Aluminum-Oxide Tunnel Barriers with High Field Endurance" (with Z. Tan *et al*.). *Appl. Phys. Lett*. **93**, No. 24, art. 242109 (2008).

254. "2D Quantum Effects in "Ultimate" Nanoscale MOSFETs" (with T. J. Walls). *J. Appl. Phys.* **104**, No. 12, art. 124307 (2008).

255. "Experimental Study of Resistive Bistability in Metal Oxide Junctions" (with Z. Tan *et al*.). *Appl. Phys. A* **103**, No. 2, pp. 293-300 (2011).

256. "All-NDR Crossbar Logic" (with D. B. Strukov), In: *Proc. of IEEE NANO*, pp. 865-868 (2011).

257. "Design and Simulation of Molecular Nonvolatile Single-electron Resistive Switches" (with N. Simonian and A. Mayr). *J. Appl. Phys.* **113**, No. 1, art. 044504 (2013).

258. "Self-Organization in Autonomous, Recurrent, Firing-Rate CrossNets with Quasi-Hebbian Plasticity" (with T. J. Walls). *IEEE Trans. on Neural Networks and Learning Systems* **25**, No. 4, pp. 819-824 (2014).

259. (a) "Training and Operation of an Integrated Neuromorphic Network Based on Metal-Oxide Memristors" (with M. Prezioso *et al*.). *Nature* **521**, No. 7550, pp. 61-64 (2015).

(b) "Modeling and Implementation of Firing-Rate Neuromorphic-Network Classifiers with Bilayer $Pt/Al_2O_3/TiO_{2-x}/Pt$ Memristors" (with M. Prezioso *et al.*). *IEDM Techn. Dig.*, pp. 455-458 (2015).

260. "Redesigning Commercial Floating-Gate Memory for Analog Computing Applications" (with F. Merrikh Bayat *et al.*). In: *Proc. of ISCAS*, pp. 1921-1924 (2015).

261. "Self-Adaptive Spike-Time-Dependent Plasticity of Metal-Oxide Memristors" (with M. Prezioso *et al*.). *Sci. Rep.* **6**, art. 21331 (2016).

262. "Model-Based High-Precision Tuning of NOR Flash Memory Cells for Analog Computing Applications" (with F. Merrikh Bayat *et al*.). In: *Proc. of 74th DRC* (Newark, DE, June 2016)

263. (a) "Fast, Energy-Efficient, Robust, and Reproducible Mixed-Signal Neuromorphic Classifier Based on Embedded NOR Flash Memory Technology" (with X. Guo *et al*.). In: *IEDM Techn. Dig.,* pp. 6.5.1-6.5.4 (2017).

(b) "High-Performance Analog Neurocomputing with Nanoscale Floating-Gate Memory Cell Arrays" (with F. Merrikh Bayat *et al*.). *IEEE Trans. on Neural Networks and Learning Systems* **29**, pp. 4782-4790 (2018).

264. "Capacity, Fidelity, and Noise Tolerance of Associative Spatial-Temporal Memories Based on Memristive Neuromorphic Networks" (with D. Gavrilov and D. Strukov). *Front. Neurosci.* **12**, art 195 (2018).

265. "Mixed-Signal Neuromorphic Inference Accelerators: Recent Results and Future Prospects" (with M. Bavandpour *et al*.). *IEDM Techn. Dig.*, pp. 20.4.1-20.4.4 (2018).