

## Publication List

高柳 英明

1. T. Aoki, Y. Endo, H. Takayanagi and K. Sakurai, "Photoelectron Statistics and Autocorrelation of a Mixer of Chaotic and Coherent Light of Same and Different Frequencies", Phys. Rev. A **13**, 853 (1976).
2. H. Takayanagi and T. Masumi, "A Broadband and Higher-Power Superconducting Quantum Magnetometer for the Small Signal A-D Converter", Japan. J. Appl. Phys., **17**, 1117 (1978).
3. K. Nagata, S. Uehara, A. Matuda and H. Takayanagi, "Nb Based Te Barrier Josephson Junctions", IEEE Trans., MAG-**17**, 684 (1981).
4. K. Nagata, H. Takayanagi and S. Uehara, "mm-Wave Mixer with Nb-Te-NbJosephson Junction", J. Appl. Phys., **52**, 4852 (1981).
5. H. Takayanagi, K. Nagata and S. Uehara, "Nb-Te-Nb Josephson mm-Wave Mixer Characteristics and Analysis", Japan. J. Appl. Phys., **21**, 848 (1982).
6. H. Takayanagi, S. Uehara and T. Kawakami, "Characteristics of Three-Dimensional Nb Weak Links", Proc. Symp. Superconducting Quantum Electronics, 84, (Tokyo, 1983).
7. H. Takayanagi and T. Kawakami, "Small Area Planar Nb/Nb Josephson Tunnel Junction with High Current Density", Japan. J. Appl. Phys., **23**, L43 (1984).
8. T. Kawakami and H. Takayanagi, "Single-Crystal n-InAs Coupled Josephson Junction", Appl. Phys. Lett., **46**, 92 (1985).
9. H. Takayanagi and T. Kawakami, "Planar-Type InAs-Coupled Three-Terminal Superconducting Devices", Digest of Technical Papers of IEDM, 98 (Washington D.C., 1985).
10. H. Takayanagi and T. Kawakami, "Superconducting Proximity Effect in the Native Inversion Layer on InAs", Phys. Rev. Lett., **54**, 2449 (June, 1985).
11. H. Takayanagi, "Electric Field Effect on Superconductivity in an Inversion Layer Proximity System", Proc. 2nd Inter. Symp. on Foundations of Quantum Mechanics edited by M. Namiki et al. (The Physical Society of Japan, Tokyo, 1987) 241.
12. T. Kawakami, H. Takayanagi and K. Inoue, "InAs Coupled Superconducting Device", in *Superconductivity Electronics* (Prentice Hall, New Jersey, 1987) 285.
13. T. Kawakami and H. Takayanagi, "Proximity Effect in Bulk and Surface Inversion Layer of InAs and its Application to Superconducting Transistors", Proc. Int. Conf. Low Temp. Phys., 2059 (LT-**18**, Kyoto, 1987).
14. N. Hatakenaka, S. Kurihara and H. Takayanagi, "Anomalous Current-Voltage Characteristics due to Macroscopic Resonant Tunneling in a Small Josephson Junction", Phys. Rev. B **42**, 3987 (1990).
15. N. Hatakenaka, H. Takayanagi and S. Kurihara, "Macroscopic Resonant Tunneling and Anomalous Current-Voltage Characteristics", Proc. Int. Conf. Low Temp. Phys., LT-**19**, Brighton, 1990 (North-Holland, Amsterdam, 1990), 931.
16. H. Takayanagi, "Photon-Assisted Macroscopic Quantum Tunneling in a Small Josephson Junction", Proc. Int. Conf. Low Temp. Phys., LT-**19**, Brighton, 1990 (North-Holland, Amsterdam, 1990), 959.
17. H. Takayanagi, K. Inoue and Y. Tanaka, "Local Tunneling Spectroscopy of the Quasiparticle

- in a Nb/InAs/Nb System", Proc. Int. Conf. Low Temp. Phys., LT- **19**, Brighton, 1990 (North-Holland, Amsterdam, 1991), 467
18. K. Inoue and H. Takayanagi, "Local Tunneling Spectroscopy of an Nb/InAs/Nb Superconducting Proximity System with a Scanning Tunneling Microscope", Phys. Rev. B **43**, 6214 (1991).
  19. A. Furusaki, H. Takayanagi and M. Tsukada, "Theory of Quantum Conduction of Supercurrent through a Constriction", Phys. Rev. Lett. **67**, 132 (1991).
  20. A. Furusaki, H. Takayanagi and M. Tsukada, "Theory of Quantum Conduction of Supercurrent through Narrow Channels", in SQUID'91, edited by H. Koch and H. Lübig (Springer-Verlag, Heidelberg, 1991).
  21. J. Nitta, H. Nakano, T. Akazaki and H. Takayanagi, "Sub-Energygap Structures in a Nb/InAs/Nb Junction", in SQUID'91, edited by H. Koch and H. Lübig (Springer-Verlag, Heidelberg, 1991) 295.
  22. A. Furusaki, H. Takayanagi and M. Tsukada, "Josephson Current through Narrow Channels", in Proc. M2S-HTSC III (Kanazawa, 1991).
  23. T. Akazaki, J. Nitta and H. Takayanagi, "Single Crystal Growth of Nb Films onto MBE grown on (100)InAs", Appl. Phys. Lett. **59**, 2037 (1991).
  24. H. Nakano, T. Akazaki, J. Nitta and H. Takayanagi, "Thickness Dependence of Cooperon Lifetime in Quasi-Two Dimensional InAs Films", Solid State Commun. **80**, 251 (1991).
  25. H. Nakano and H. Takayanagi, "Quasiparticle Interferometer Controlled by Quantum-Correlated Andreev Reflection", Solid State Commun. **80**, 997 (1991).
  26. A. Furusaki, H. Takayanagi and M. Tsukada, "Josephson Effect of the Superconducting Quantum Point Contact", Phys. Rev. B **45**, 10563 (1992).
  27. H. Takayanagi, J. Nitta and T. Akazaki, "Transport in Semiconductor-Coupled Superconducting Structures", in Proc. 1st Int. Workshop on Quantum Functional Devices (Nasu, 1992) 110.
  28. H. Nakano and H. Takayanagi, "Modification of Quasiparticle Interference by Andreev-Reflection Phase Shifter", Proc. 4th Inter. Symp. on Foundations of Quantum Mechanics ISQM edited by Namiki et al. (Japanese Society of Applied Physics, Tokyo, 1993) p.110.
  29. Y. Tanaka, A. Hasegawa and H. Takayanagi, "Microscopic Theory of Quasiparticle Energy Spectrum in a Quantum Dot formed by a Superconducting Pair Potential", Proc. 4th Inter. Symp. on Foundations of Quantum Mechanics ISQM edited by Namiki et al. (Japanese Society of Applied Physics, Tokyo, 1993) p.185.
  30. J. Nitta, T. Akazaki, H. Takayanagi and K. Arai, "Transport properties in InAs-inserted-channel InAlAs/InGaAs heterostructure coupled superconducting junction", Phys. Rev. B **46**, Rapid Commun. 14286 (1992).
  31. H. Takayanagi, T. Akazaki and J. Nitta, "Superconducting Structures on Narrow Gap Semiconductors", Semicond. Sci. Technol. **8**, S431 (1993).
  32. H. Nakano and H. Takayanagi, "Quasiparticle Interferometer controlled by Quantum-Correlated Andreev Reflection", Phys. Rev. B **47**, 7986 (1993).
  33. Y. Tanaka, A. Hasegawa and H. Takayanagi, "Energy Spectrum of the Quasiparticle in a Quantum Dot formed by a Superconducting Pair Potential under a Magnetic Field", Solid State, Commun. **85**, 321 (1993).
  34. Niko van der Post, J. Nitta and H. Takayanagi, "Elastic scattering and the current-voltage characteristics of superconducting Nb-InAs-Nb junctions", Appl. Phys. Lett. **63**, 2555 (1993).
  35. J. Nitta, T. Akazaki and H. Takayanagi, "Magnetic-field dependence of Andreev reflection in a

- clean Nb-InAs-Nb junction", Phys. Rev. B **49**, 3659 (1994).
36. H. Nakano and H. Takayanagi, "Second quantization description of Andreev reflection", Proc. Int. Conf Low Temp. Phys., LT-**20**, Eugene, 1993 (Physica B**194-196**, 1759 (1994)).
37. Y. Tanaka, A. Hasegawa and H. Takayanagi, "Tunneling conductance of a quantum dot formed by a superconducting pair potential", Proc. Int. Conf. Low Temp. Phys., LT-**20**, Eugene, 1993 (Physica B**194-196**, 950 (1994)).
38. J. Nitta, T. Akazaki and H. Takayanagi, Proc. Int. Conf. Low Temp. Phys., LT-**20**, Eugene, 1993 (Physica B**194-196**, 1757 (1994)).
39. H. Nakano and H. Takayanagi, "Second-quantization description of Andreev reflection and the relation to quasiparticle wave approach", Phys. Rev. B **50**, 3139 (1994).
40. T. Akazaki, J. Nitta, H. Takayanagi, T. Enoki and K. Arai, "Improving the mobility of an In<sub>0.52</sub>Al<sub>0.48</sub>As/In<sub>0.53</sub>Ga<sub>0.47</sub>As inverted modulation-doped structure by inserting a strained InAs quantum well", Appl. Phys. Lett., **65**, 1263 (1994).
41. H. Takayanagi, T. Akazaki, J. Nitta and T. Enoki, "Superconducting Three Terminal Devices Using an InAs-Based Two-Dimensional Electron Gas", Extended Abst. 1994 Int. Conf. on Solid State Devices and Materials, 580 (SSDM'94, Yokohama, 1994).
42. H. Takayanagi, J. B. Hansen and J. Nitta, "Mesoscopic fluctuations in the critical current in InAs-coupled Josephson junctions", Physica B **203**, 291 (1994).
43. H. Takayanagi, J. B. Hansen and J. Nitta, "Localization effects on the critical current of a superconductor-normal-metal-superconductor junction", Phys. Rev. Lett. **74**, 162 (1995).
44. H. Takayanagi, J. B. Hansen and J. Nitta, "Mesoscopic fluctuations of the critical current in a superconductor-normal-metal-superconductor junction", Phys. Rev. Lett. **74**, 166-169 (January, 1995).
45. H. Takayanagi, T. Akazaki and J. Nitta, "Interference effects on the critical current in a clean-limit superconductor-normal-metal-superconductor junction", Phys. Rev B **51** Rapid Commun., 1374 (1995).
46. H. Takayanagi, T. Akazaki, J. Nitta and T. Enoki, "Superconducting three-terminal devices using an InAs-based two-dimensional electron gas", Jpn. J. Appl. Phys. **34**, 1391 (1995).
47. T. Akazaki, J. Nitta, H. Takayanagi, and K. Arai, "Superconducting Junctions using a 2DEG in a Strained InAs Quantum Well Inserted into an InAlAs/InGaAs MD Structure", Applied Superconductivity Conf. (Boston, 1994) (IEEE Trans. Appl. Supercon. **5**, 2887 (1995)).
48. H. Takayanagi and T. Akazaki, "Critical-current oscillations due to the interference effects in a clean-limit superconductor-2DEG-superconductor junction", International Workshop on Mesoscopic Physics and Electronics (Tokyo March 1995) (Jpn. J. Appl. Phys. **34**, 4552 (1995)).
49. Y. Harada and H. Takayanagi, "Coherent Cooper pair tunneling in a superconducting single electron transistor", International Workshop on Mesoscopic Physics and Electronics (Tokyo March 1995) (Jpn. J. Appl. Phys. **34**, 4572 (1995)).
50. Y. Tanaka and H. Takayanagi, "Energy spectrum of the quasiparticle in a quantum dot formed by a superconducting pair potential", International Workshop on Mesoscopic Physics and Electronics (Tokyo March 1995) (Jpn. J. Appl. Phys. **34**, 4566 (1995)).
51. H. Takayanagi and T. Akazaki, "Andreev reflection at the superconductor-two-dimensional -electron-gas interface by a quantum point contact", Phys. Rev. B**52** Rapid Commun., R8633 (1995).
52. H. Takayanagi, "Semiconductor-coupled Josephson junction with a submicron split gate electrode", Second International Conference on Point Contact Spectroscopy (Nijmegen June

- 1995) (*Physica B* **218**, 113 1996).
53. H. Takayanagi, "Sub-micron gate-fitted superconducting junction using a 2DEG", The 8th International Micro-Process Conference (Sendai July 1995 ) (*Jpn. J. Appl. Phys.* **34**, 6977, 1995).
54. H. Takayanagi, T. Akazaki and J. Nitta, "Observation of the quantized critical current in a superconducting quantum point contact", XIth International Conference on Electronic Propertioes of Two Dimensional Systems (Nottingham August 1995) (*Surface Science*, **361/362**, 298 (1996)).
55. H. Takayanagi and H. Nakano, "Macroscopic Quantum Tunneling in a Superconductor-Normal Metal-Superconductor Junction", 5th International Symposium on Foundations of Quantum Mechanics (ISQM-Tokyo'95) (Hatoyama August 1995).
56. H. Takayanagi , T. Akazaki and J. Nitta, "Observation of Maximum Supercurrent Quantization in a Superconducting Quantum Point Contact", *Phys. Rev. Lett.* **75**, 3533 (1995).
57. H. Takayanagi and T. Akazaki, "Temperature dependence of the critical current in a clean-limit superconductor-2DEG-superconductor junction", *Solid State Commun.* **96**, 815 (1995).
58. Takayanagi, "Andreev Reflection and Quantum Transport in an S-N-S Junction", Third International Symposium on New Phenomena in Mesoscopic Structures (Maui, December 1995 ) (*Physica B* **227**, 224 (1996)).
59. T. Akazaki, H. Takayanagi, J. Nitta, and T. Enoki, "A Josephson field effect transistor using an InAs-inserted-channel In<sub>0.52</sub>Al<sub>0.48</sub>As/In<sub>0.53</sub>Ga<sub>0.47</sub>As inverted modulation-doped structure", *Appl. Phys. Lett.* **68**, 418 (1996).
60. T. Akazaki, H. Takayanagi, and T. Enoki, "Kink effect in an InAs-inserted-channel InAlAs/InGaAs inverted HEMT at low temperature", *IEEE Electron Device Lett.* **17**, 378 (1996).
61. T. Akazaki, J. Nitta, H. Takayanagi, T. Enoki, and K. Arai, "Highly confined two-dimensional electron gas in an InAlAs/InGaAs modulation-doped structure with a strained InAs quantum well", *J. Elect. Materials* **25**, 745 (1996).
62. A. F. Volkov and H. Takayanagi,"AC long-range phase-coherent effects in mesoscopic superconductor-normal-metal-superconductor structures", *Phys. Rev. Lett.* **76**, 4026 (1996).
63. Y. Takagaki and H. Takayanagi, "Quantized conductance in semiconductor-superconductor-junction quantum point contacts", *Phys. Rev. B* **53**, 14530 (1996).
64. A. F. Volkov and H. Takayanagi, "Effect of gate voltage on critical current in controllable superconductor-normal-metal-superconductor Josephson junctions", *Phys. Rev. B* **53**, 15162 (1996).
65. T. Akazaki, J. Nitta, H. Takayanagi and T. Enoki, "Superconducting transistors using InAs-inserted-channel InAlAs/InGaAs inverted HEMTs", *Supercond. Sci. Technol.* **9**, 83 (1996).
66. Y. Harada, H. Takayanagi and A. A. Odintsov, "Cooper-pair tunneling in small junctions with tunable Josephson coupling", *Phys. Rev. B* **54**, 6608 (1996).
67. H. Takayanagi and A. F. Volkov, "AC long-range phase-coherent effect of S-N-S junctions in the dirty limit", Weak Superconductivity Symposium WSS96 (Smolenice 1996) (J. of Low Temp. Phys. **106**, 285 (1997).)
68. H. Takayanagi, E. Toyoda, and T. Akazaki, "Observation of the resistance minimum in a gated superconductor-semiconductor junction with a variable transparency", Proc. 21st Int. Conf. Low Temp. Phys. LT-**21**, Prague, 1996, p.2507.
69. V. Antonov and H. Takayanagi, "Essence of "proximity" model for interference phenomena in mesoscopic normal metal-superconducting structures", Proc. 21st Int. Conf. Low

- Temp. Phys. LT-**21**, Prague, 1996, p.2313.
70. H. Takayanagi, "Three terminal superconductor-semiconductor devices", **23rd Int Conf. Physics of Semiconductors** (Berlin 1996, World Scientific) 3395.
71. J. Nitta, T. Akazaki, H. Takayanagi and T. Enoki, "Gate Control of Spin-Orbit Interaction in an Inverted In<sub>0.53</sub>Ga<sub>0.47</sub>As/In<sub>0.52</sub>Al<sub>0.48</sub>As Heterostructure", Phys. Rev. Lett. **78**, 1335 (1997).
72. V. N. Antonov, A.F. Volkov, and H. Takayanagi, "Anomalous proximity effect in mesoscopic normal-metal-superconductor structures", Phys. Rev. B **55**, 3836 (1997).
73. V. N. Antonov, A. F. Volkov and H. Takayanagi, "The role of induced condensate in transport of normal metal-superconducting mesoscopic structures", Euro Phys. Lett. **38**, 453 (1997).
74. H. Takayanagi and T. Akazaki, "Three-terminal superconductor-semiconductor devices", Proc. 8th Int. Conf. Narrow Gap Semiconductors (April, 1997 上海) (World Scientific, 1998) 238.
75. V.N. Antonov and H. Takayanagi, "ac Effect of mesoscopic normal metal-superconductor structures", Phys. Rev. B **56** Rapid Commun., R8515 (1997).
76. H. Takayanagi, "Quantum transport in semiconductor-coupled superconducting junctions", Proc. Int. Symp. NANOSTRUCTURES (June, 1997, St. Petersburg), p.1.
77. H. Takayanagi, T. Akazaki, and E. Toyoda, "Critical current-gate voltage characteristics in short- and long-gated Josephson junctions", 6th Int. Superconductive Electronics Conf. (Berlin, June 1997) p.23.
78. H. Takayanagi and T. Akazaki, "Semiconductor-coupled superconducting junctions using NbN electrodes with high H<sub>c2</sub> and T<sub>c</sub>", Int. Conf. Elect. Prop.2-Dim. Systems (EP2DS) (Tokyo, 1997), (Physica B **249-251**, 462 (1998)).
79. E. Toyoda and H. Takayanagi, "Magnetoresistance oscillations of quasi-ballistic 2DEG coupled with a superconducting ring", Int. Conf. Elect. Prop.2-Dim. Systems (EP2DS) (Tokyo, 1997), (Physica B **249-251**, 472 (1998)).
80. A. F. Volkov and H. Takayanagi, "Long-range phase-coherent effects in transport properties of mesoscopic superconductor-normal-metal structures", Phys. Rev. B **56**, 11184 (1997).
81. B.J. van Wees and H. Takayanagi, "The superconducting proximity effect in semiconductor-superconductor systems", in *Mesoscopic Electron Transport* ed. by L.L. Sohn et al, (Kluwer, Dordrecht, 1997) p. 469.
82. H. Takayanagi, T. Akazaki and E. Toyoda, "Critical current-gate voltage characteristics in short- and long-gated Josephson junctions", Applied Supercond. **5**, 357 (1998).
83. J. Nitta, T. Akazaki, H. Takayanagi & T. Enoki, "Gate control of spin-orbit interaction in an InAs-inserted InGaAs/InAlAs heterostructure", Physica E **2**, 527 (1998).
84. E. Toyoda and H. Takayanagi, "Gate-controlled reentrance of the resistance in a superconductor-2DEG junction", the 24th Int. Conf. on the Physics of Semiconductors (Jerusalem, 1998) Mo-P82.
85. J. Nitta and H. Takayanagi, "Magnetoresistance in ferromagnetic/InAs-2DEG/ferromagnetic junctions", the 24th Int. Conf. on the Physics of Semiconductors (Jerusalem, 1998), Tu2-C5.
86. T. Akazaki, J. Nitta and H. Takayanagi, "InAs-inserted-channel InAlAs/InGaAs inverted HEMTs with NbN electrodes", 1998 Applied Supercon. Conf. (Palm Desert, 1999) (IEEE Trans. of Appl. Supercon. **9**, 4253 (1999)).
87. H. Nakano and H. Takayanagi, "Charging effects on superconducting proximity correction in normal-metal wire conductance", The 6th Inter. Symp. on Foundations of Quantum Mechanics ISQM-Tokyo '98 (Hatoyama, 1998), in *Quantum Coherence and Decoherence*, ed. By Y.A. Ono and K. Fujikawa (North-Holland, 2000) p.237
88. E. Toyoda, H. Takayanagi and H. Nakano, "Systematic gate-controlled reentrant conductance of a superconductor-semiconductor two-dimensional gas junction", Phys. Rev. B **59** Rapid

- Commun. R11653 (1999).
89. H. Takayanagi, V.N. Antonov and E. Toyoda, "Superconducting proximity effect in mesoscopic superconductor/normal-metal junctions", J. Korean Phys. Soc. **34**, S148 (1999).
  90. H. Takayanagi, "Superconducting Transport in Superconductor-Semiconductor-Superconductor Junctions", in *Physics and Application of Mesoscopic Josephson Junctions* ed. by H. Ohta and C. Ishii (Phys. Soc. Jpn., Tokyo, 1999) p.213.
  91. H. Takayanagi and V.N. Antonov, "Transport in mesoscopic normal metal-superconductor structures", in *Physics and Application of Mesoscopic Josephson Junctions* ed. by H. Ohta and C. Ishii (Phys. Soc. Jpn., Tokyo, 1999) p.233.
  92. J. Nitta, F. Meijer and H. Takayanagi, "Spin-interference device", Appl. Phys. Lett. **75**, 695 (1999).
  93. H. Takayanagi, E. Toyoda and T. Akazaki, "A superconductor/semiconductor/superconductor junction with a long-split gate", Superlattices and Microstructures **25**, 993 (1999).
  94. G. Wendin, V. S. Shumeiko, P. Samuelson and H. Takayanagi, "Model Study of Ballistic S-2DEG-S Josephson Field Effect Transistors", Jpn. J. Appl. Phys. **38**, 354 (1999).
  95. E. Toyoda and H. Takayanagi, "Giant Andreev backscattering in a superconductor-semiconductor junction", The XXXIVth Recontres de Moriond on Quantum Physics at Mesoscopic Scale, (Les Arcs January 1999) p. 391 (Editions Frontieres, 2000).
  96. H. Takayanagi and T. Akazaki, "Superconductor-semiconductor junctions with niobium nitride electrodes", The XXXIVth Recontres de Moriond on Quantum Physics at Mesoscopic Scale (Les Arcs January 1999) p. 421 (Editions Frontieres, 2000).
  97. C-M. Hu, J. Nitta, T. Akazaki and H. Takayanagi, "Zero-field spin splitting in an inverted InGaAs/InAlAs heterostructure\* Band nonparabolicity influence and the subband dependence", Phys. Rev. B **60**, 7736 (1999).
  98. N. Hatakenaka, H. Takayanagi, Y. Kasai and S. Tanda, "Double sine-Gordon fluxons in isolated Josephson junctions", Proc. 22nd Int. Conf. Low Temp. Phys. LT-**22**, Helsinki, 1999, 5P7 (to be published in Physica B **284-288**, 563(2000)).
  99. E. Toyoda, H. Takayanagi and H. Nakano, "Gate-modified Giant Andreev Backscattering", Proc. 22nd Int. Conf. Low Temp. Phys. LT-**22**, Helsinki, 1999, 5P10 (Physica B**284-288**, 569(2000)).
  100. E. Hürfeld, P. Samuelson, B. Starmark, T. Akazaki, E. Toyoda, H. Takayanagi, G. Johansson, V. Shumeiko, G. Wendin, and P. Delsing, "Measurements and numerical simulations of a ballistic Josephson interference transistor", Proc. 22nd Int. Conf. Low Temp. Phys. LT-**22**, Helsinki, 1999, 7U1.
  101. E. Hürfeld, T. Akazaki, E. Toyoda, H. Takayanagi, and P. Delsing, "Temperature dependence of the critical current in a superconducting quantum point contact and in a Josephson field effect transistor", Proc. 22nd Int. Conf. Low Temp. Phys. LT-**22**, Helsinki, 1999, 7U2.
  102. K. Matsunaga, M. Nishida, D. Matsumoto, S. Kurihara, N. Hatakenaka and H. Takayanagi, "Josephson phase dynamics in 3He weak links", Proc. 22nd Int. Conf. Low Temp. Phys. LT-**22**, Helsinki, 1999, 9K23 (Physica B**284-288**, 285 (2000)).
  103. H. Nakano and H. Takayanagi, "Mesoscopic transport and superconducting proximity effect in normal-metal(semiconductor) wire", Electron Transport in Mesoscopic Systems 1999 (Göteborg, 1999) 221, (J. Low Temp. Phys. **118**, 653 (2000)).
  104. C. M. Hu, J. Nitta, T. Akazaki and H. Takayanagi, "Evidence of the Coulomb gap in an InAs inserted InGaAs/InAlAs heterostructure", The 9th Int. Conf. on Modulated Semicond. Structures MSS9 (Fukuoka, 1999) 235, (Physica E **7**, 795 (2000)).

105. J. Nitta, F. Meijer, Y. Narita and H. Takayanagi, " Gate voltage dependent Aharonov-Bohm experiment in the presence of Rashba spin-orbit interaction", The 13th Int. Conf. on the Electron Properties of Two-Dimensional Systems, EP2DS-13 (Ottawa, 1999) 125, (Physica E **6**, 318 (2000)).
106. C.M. Hu, J. Nitta, T. Akazaki, H. Takayanagi, J. Osaka, P. Pfeffer and W. Zawadzki, "Observation of the zero-field spin splitting of the second subband in an inverted InGaAs/InAlAs heterostructure", The 13th Int. Conf. on the Electron Properties of Two-Dimensional Systems, EP2DS-13 (Ottawa, 1999) 483, (Physica E **6**, 767 (2000)).
107. T. Akazaki, H. Yamaguchi, J. Nitta and H. Takayanagi, "Superconductor-semiconductor-superconductor junctions using NbN", Supercond. Sci. Technol. **12** (1999) 901.
108. H. Takayanagi, T. Akazaki, E. Toyoda and H. Nakano, "Quantum Transport in superconductor-semiconductor junctions", Int. Symp. On Mesoscopic Superconductivity MS-2000 (Atsugi, March 2000), Physica C **352**, 95 (2001).
109. P. Roche, H. Perrin, D.C. Glattli, H. Takayanagi and T. Akazaki, "Enhanced shot noise in long quasi-diffusive S-N-S junctions", Int. Symp. On Mesoscopic Superconductivity MS-2000 (Atsugi, March, 2000), Physica C **352**, 73 (2001).
110. B. Starmark, E. Hürfeld, T. Henning, P. Delsing, A.N. Korotkov, R.S. Shaikhaidarov, T. Akazaki, E. Toyoda and H. Takayanagi, "Noise in the single electron transistor and controlled Josephson current in ballistic three terminal devices", Int. Symp. On Mesoscopic Superconductivity MS-2000 (Atsugi, March, 2000), Physica C **352**, 101 (2001).
111. J. Nitta, C.M. Hu, A. Jensen, J.B. Hansen and H. Takayanagi, "Spin injection experiment with multiple NiFe/InAs-2DEG/NiFe junctions", Int. Symp. On Mesoscopic Superconductivity MS-2000 (Atsugi, March, 2000), Physica C **352**, 215 (2001).
112. G. Bastian and H. Takayanagi, "Ballistic reflection at a side gate in a superconductor-semiconductor-superconductor structure", Int. Symp. On Mesoscopic Superconductivity MS-2000 (Atsugi, March, 2000), Physica C **352**, 219 (2001).
113. H. Tamura, K. Shiraishi and H. Takayanagi, "Ferromagnetism in Semiconductor Dot Array", Jpn. J. Appl. Phys. **39**, L241 (2000).
114. V. N. Antonov, H. Takayanagi, F. K. Wilhelm and A. D. Zaikin, " $\pi$ -shifted magnetoresistance oscillations in mesoscopic superconductor-normal-heterostructure", Europhys. Lett. **50**, 250 (2000).
115. E. Toyoda, H. Takayanagi and H. Nakano, "Gate-modified giant Andreev backscattering in a superconductor-semiconductor junction", J. Phys. Soc. Jpn. **69**, 1801(2000).
116. H. Nakano and H. Takayanagi, "Influence of phase quantum fluctuations on superconducting proximity correction in normal-metal wire conductance", Phy. Rev. B. **61**, 15398 (2000).
117. E. V. Bezuglyi, E. N. Bratus, V. S. Shumeiko, G. Wendin and H. Takayanagi, "Circuit theory of multiple Andreev reflections in diffusive SNS junctions: The incoherent case", Phys. Rev. B **62**, 14439 (2000).
118. R. Shaikhaidarov, A. F. Volkov, H. Takayanagi, V. T. Petrashov, and P. Delsing, "Josephson effects in a superconductor-normal-metal mesoscopic structure with a dangling superconducting arm", Phys. Rev. B Rapid Commun. **62**, R14649 (2000).
119. H. Takayanagi, H. Tamura, K. Shiraishi and T. Kimura, "Design of a semiconductor ferromagnet in artificial crystals", The proceedings of XXXVI th Recontres de Moriond on Electronic Correlations: from meso- to nano-physic, in *Electronic Correlations: From Meso- to Nano-Physics*, ed. by T. Martin et al. EDP Sciences, France 2001, p.469.

120. H. Tamura, K. Shiraishi and H. Takayanagi, "Semiconductor Ferromagnetism in Quantum Dot Array", Int. Conf. on Semiconductor Quantum Dots (Munich, July 2000), *Physica Status Solidi (b)* **224**, 723 (2001).
121. C. -M. Hu, J. Nitta, A. Jensen, J. B. Hansen, and H. Takayanagi, "Spin-polarized transport in a two-dimensional electron gas with interdigital-ferromagnetic contacts", *Phys. Rev. B* **63**, 125333 (2001).
122. K. Shiraishi, H. Tamura and H. Takayanagi, "Design of a semiconductor ferromagnet in a quantum-dot artificial crystal", *Appl. Phys. Lett.* **78**, 3702 (2001).
123. H. B. Heersche, Th. Schäpers, J. Nitta and H. Takayanagi, "Enhancement of spin injection from ferromagnetic metal into a two-dimensional electron gas using a tunnel barrier", *Phys. Rev. B* **64**, 161307 (2001).
124. Th. Schäpers, J. Nitta, H.B. Heersche and H. Takayanagi, "Interference ferromagnet/semiconductor/ferromagnet spin field-effect transistor", *Phys. Rev. B* **64**, 125314 (2001).
125. S. Saito, Y. Sekine, H. Tanaka and H. Takayanagi, "Magnetic Field Dependence of Retrapping Currents in DC-SQUIDs", Proc. of Int. Workshop on Superconducting Nano-Electronics Device (Naple, May 2001) Kluwer Academic Publishers, New York 2002, p.219.
126. H. Nakano and H. Takayanagi, "Decoherence and Error Correction for Qubit Information on Coupled Qubits", Quantum Computers and Quantum Chaos (Como, June 2001).
127. T. Akazaki, H. Yamaguchi, J. Nitta and H. Takayanagi, "Superconducting Junctions using InAs/GaAs heterostructures on (111)A Substrate", Proc. NGS 10, IPAPConf. Series 2, p.257.
128. T. Koga, J. Nitta, T. Akazaki and H. Takayanagi, "Determination of Rashba Spin-Splitting Energies in InGaAs/InAlAs Heterostructures using Anti-Weal-Localization Analysis", Proc. NGS 10, IPAPConf. Series 2, p227.
129. H.B. Heersche, J. Nitta, Th. Schäpers, H. Takayanagi and A.T. Fillip, "High Spin-Injection expected from ferromagnetic metal into 2-dimensional electron gas using tunnel barrier", Proc. Of the 10<sup>th</sup> Int. Conf. on Narrow Gap Semiconductors (Kanazawa, May 2001), IPAPConf. Series 2, p254.
130. H. Takayanagi, E. Toyoda and T. Akazaki, "Reflectionless Tunneling due to Andreev Reflection in a Gated Superconductor-Semiconductor Junction", SDP2001(Tokyo, June 2001), *Physica C* **367**, 204 (2002).
131. Y. Harada, S. Jensen, T. Akazaki and H. Takayanagi, "Anomalous Magnetic Flux Periodicity of Supercurrent in Mesoscopic SNS Josephson Junctions", SDP2001 (Tokyo, June 2001), *Physica C* **367**, 229 (2002).
132. H. Nakano and H. Takayanagi, "Proximity-induced Cooper-pair in a very small normal-metal island", SDP2001(Tokyo, June 2001), *Physica C* **367**, 211 (2002).
133. H. Tanaka, S. Saito, Y. Sekine and H. Takayanagi, "DC-SQUID sensitivity for quantum readout", ISEC 2001(Osaka, June 2001), Suerconductor Science and Technology **14**, 1161 (2001).
134. H. Takayanagi, T. Akazaki, M. Kawamura, Y. Harada and J. Nitta, "Superconducting Junctions using AlGaAs/GaAs Heterostructures with High  $H_{c2}$  NbN Electrodes", 14<sup>th</sup> Int. Conf. on the Electronic Properties of two-Dimensional Systems (EP2DS-14, Prague, July 2001), *Physica E* **12**, 922 (2002).
135. T. Kimura, K. Shiraishi, H. Tamura and H. Takayanagi, "magnetic field effects on the ferromagnetism and transport properties of Kagome dot superlattices", 14<sup>th</sup> Int. Conf. on the

- Electronic Properties of two-Dimensional Systems (EP2DS-14, Prague, July 2001), *Physica E* **12**, 197 (2002).
136. J. Nitta, T. Koga and H. Takayanagi, "Interference of Aharonov-Bohm Ring Structures by Spin-Orbit Interaction", EP2DS-14 (Prague, July 2001), *Physica E* **12**, 753 (2002).
  137. T. Koga, J. Nitta, T. Akazaki and H. Takayanagi, "Rashba spin-splitting energies probed by anti-weak-localization analysis in symmetric and asymmetric InAlAs/InGaAs/InAlAs quantum wells", 10<sup>th</sup> Int. Conf. On Modulated Semiconductor Structures (MSS10, Linz, July 2001), *Physica E* **13**, 542 (2002).
  138. Th. Schäpers, J. Nitta, H.B. Heersche and H. Takayanagi, "Model for ballistic spin-transport in ferromagnet/two-dimensional electron gas/ferromagnet structures", *Physica E* **13**, 564 (2002).
  139. C.M. Hu, J. Nitta, A. Jensen, J. B. Hansen and H. Takayanagi, "Observation of spin injection into a two dimensional electron gas using inter-digital-ferromagnetic contacts", EP2DS-14 (Prague, July 2001), *Physica E* **12**, 395 (2002).
  140. H. Nakano and H. Takayanagi, "Decoherence in strongly interacting qubits", ISQM-Tokyo '01 (Hatoyama, August 2001).
  141. J. Nitta, Th. Shaepers, H. B. Heersche, T. Koga and H. Takayanagi, "Characterization of Ferromagnetic Electrodes for Spin Injection into Semiconductor using Local Hall Effect", SSDM2001 (Tokyo, September 2001), *Jpn. J. Appl. Phys.* **41** 2497 (2002).
  142. T. Koga, J. Nitta, T. Akazaki and H. Takayanagi, "Conditions for the Spin Reflection Phenomena Predicted for Semiconducting Triple Barrier Structures in the Presence of Rashba Spin-Orbit Coupling", SSDM2001(Tokyo, September 2001), *Jpn. J. Appl. Phys.* **41** 2501 (2002).
  143. T. Kimura, K. Shiraishi, H. Tamura and H. Takayanagi, "Magnetic field effect on two-dimensional Kagome lattices", *Phys. Rev. B Rapid Commun.* **65**, 081307 (2002).
  144. H. Tamura, K. Shiraishi, T. Kimura and H. Takayanagi, "Flat-band Ferromagnetism in Quantum Dot Superlattices", *Phys. Rev. B* **65**, 085324 (2002).
  145. H. Tanaka, Y. Sekine, S. Saito and H. Takayanagi, "DC-SQUID readout for qubit", SQUID 2001 (Stenungsbaden, August 2001) *Physica C* **368**, 300-304 (2002).
  146. T. Koga, J. Nitta, H. Takayanagi and S. Datta, "Spin-filter device based on the Rashba effect using a non-magnetic resonant tunneling diode", *Phys. Rev. Lett.* **88**, 126601 (2002)
  147. H. Takayanagi, H. Tanaka, S. Saito and H. Nakano, "Observation of qubit state in a dc-SQUID and dissipation effect in the SQUID", Proc. of the Jubilee Nobel Symposium (Göteborg, December 2001) *Physica Scripta T102*, 95 (2002).
  148. T. Koga, J. Nitta, T. Akazaki and H. Takayanagi, "Rashba spin-orbit coupling probed by the weak antilocalization analysis in InAlAs/InGaAs/InAlAs quantum wells as a function of quantum well asymmetry", *Phys. Rev. Lett.* **89**, 046801 (July, 2002).
  149. C. -M. Hu, J. Nitta, A. Jensen, J.B. Hansen, H. Takayanagi, T. Matsuyama, D. Heitman, and M. Merkt, "Spin injection across a Hybrid Heterostructure: Theoretical Understanding and an Experimental Approach", *J. Appl. Phys.* **91**, 7251 (2002).
  150. S. Saito, H. Tanaka, H. Nakano, H. Takayanagi and M. Ueda, "π-phase jump of a magnetic-field dependence of retrapping current in dc-SQUIDs", *Phys. Rev. B* **66**, 134522 (2002).
  151. T. Kimura, H. Tamura, K. Kuroki, K. Shiraishi, H. Takayanagi and R. Arita, "Superconductivity in quantum-dot superlattices designed on quantum wire network", *Phys. Rev. B* **66**, 132508 (2002).
  152. E. Hürfeld, T. Bauch, V.M. Krasnov, P. Delsing and H. Takayanagi, "Critical current distributions in ballistic Andreev junctions", The 23<sup>rd</sup> Int. Conf. on Low Temp. Phys. (LT-23), 21DP13.
  153. N. Hatakenaka, M. Nishida, M. Kumagai and H. Takayanagi, "Dual Aharonov-Casher effect in

- single-exciton systems”, The 23<sup>rd</sup> Int. Conf. on Low Temp. Phys. (LT-23), 22DP30(Physica E **18**, 239 (2003)).
154. H. Tanaka, S. Saito, H. Nakano, M. Ueda and H. Takayanagi, “Single shot measurement of Schrödinger’s cat state with SQUID”, The 23<sup>rd</sup> Int. Conf. on Low Temp. Phys. (LT-23), 22DP35.
155. K. Matsuda, H. Takayanagi and S. Hirono, “Electronic properties of super-hard carbon nanocrystallite film”, The 23<sup>rd</sup> Int. Conf. on Low Temp. Phys. (LT-23), 26EP13(Physica B **329-333**, 1529 (2003)).
156. T. Kimura, H. Tamura, K. Kuroki, K. Shiraishi, H. Takayanagi and R. Arita, “Quantum wire networks for superconducting quantum-dot superlattices”, The 23<sup>rd</sup> Int. Conf. on Low Temp. Phys. (LT-23, Hiroshima, August 2002), 22EP6 (Physica B **329-333**, 1395 (2003)).
157. Y. Harada, T. Akazaki, H. Tamura, K. Matsuda, T. Kimura, Y. Hirayama and H. Takayanagi, “Observations of magnetoresistance oscillations in a quantum dot array system”, Proceedings of 26<sup>th</sup> Int. Conf. on the Physics of Semiconductors (Edinburgh, August 2002) H174.
158. H. Takayanagi, M. Kawamura, H. Yamaguchi and T. Akazaki, “Superconducting junctions using InAs/GaAs(111)A heterostructure”, Proceedings of 26<sup>th</sup> Int. Conf. on the Physics of Semiconductors (Edinburgh, August 2002) H226.
159. K. Matsuda, N. Hatakenaka, and H. Takayanagi, “Tunable single-photon source using Korteweg-de Vries solutions, Appl. Phys. Lett. **81**, 2698 (2002).
160. H. Takayanagi, H. Tanaka, S. Saito and H. Nakano, “Readout of the qubit state with a dc-SQUID”, Superlattice and Microstructures **32**, 221 (2003).
161. H. Takayanagi, “Single-shot measurement of the qubit-state with a dc-SQUID” The 9<sup>th</sup> Japan-US Joint Seminar (Yatsugatake, Japan, September 2003), p.145.
162. T. Akazaki, H. Yamaguchi, and H. Takayanagi, “Nonequilibrium Transport of a InAs/GaAs(111)A heterostructures coupled with superconducting Nb electrodes”, Semiconductor Science and Technology **19**, S182-S184 (2004).
163. J. Haruyama, K. Takazawa, S. Miyadai, A. Takeda, N. Hori, I. Takesue, Y. Kanda, N. Sugiyama, T. Akazaki and H. Takayanagi, “Injection of Cooper pairs into quasi-diffusive multi-walled carbon nanotubes with weak localization”, Phys. Rev. B **68**, 165429 (March, 2003)
164. J. Haruyama, K. Takazawa, S. Miyadai, A. Takeda, N. Hori, I. Takesue, Y. Kanda, N. Sugiyama, T. Akazaki and H. Takayanagi, “Supercurrent in diffusive multi-walled carbon nanotubes”, Physica C **408-410**, 85 (2004).
165. H. Takayanagi “”, The proceedings of the 39 th Recontres de Moriond “Quantum Information and Decoherence in Nanosystems” (La Thuile, Italy, Jan. 2004),
166. H. Tamura , K. Shiraishi and H. Takayanagi, “Tunable Exchange Interaction in Quantum Dot Devices”, Japan. J. Appl. Phys. Express Lett. **43**, L691 (2004).
167. H. Tamura, H. Takayanagi, K. Shiraishi and L. Glazman, “Tunable exchange interaction and Kondo screening in quantum dot devices” 2nd Quantum Transport Nano-Hana Int. Workshop (Chiba, Japan, March 2004), (to be published in a special issue of the international physics journal (2004)).
168. S. Saito, H. Tanaka, H. Nakano, M. Ueda and H. Takayanagi, “Incoherent and coherent tunneling of macroscopic phase in flux qubit”, in Quantum Computing and Quantum Bits in Mesoscopic Systems, ed. By A. Leggett et al, Kluwer Academic Publishers, New York 2004, p.161.

169. D. Frank, S. Saito, H. Tanaka and H. Takayanagi, "Determination of the capacitance of nm scale Josephson junctions", *J. Appl. Phys.* **95**, 2607 (2004).
170. A. Richter, M. Yamaguchi, T. Akazaki, H. Tamura and H. Takayanagi, "Single-electron charging effects in a semiconductor quantum wire with side-coupled quantum dot", *Japan. J. Appl. Phys.* **43**, 7144 (2004).
171. I. Takesue, T. Akazaki, S. Miyadai, N. Kobayashi, A. Tokita, M. Nomura, J. Haruyama, and Hideaki Takayanagi, "Multi-walled carbon nanotubes with NbN superconducting electrodes", *Physica E* **24**, 32 (2004)..
172. S. Saito, M. Thorwart, H. Tanaka, M. Ueda, H. Nakano, K. Semba and H. Takayanagi, "Multiphoton transitions in a macroscopic quantum two-state system", *Phys. Rev. Lett.* **93**, 037001 (July, 2004).
173. H. Tanaka, S. Saito, H. Nakano, K. Semba, M. Ueda and H. Takayanagi, "Single-Shot Readout of Macroscopic Quantum Superposition State in a Superconducting Flux Qubit" cond-mat /0407299.
174. H. Nakano, H. Tanaka, S. Saito, K. Semba, H. Takayanagi, and M. Ueda, "A theoretical analysis of flux-qubit measurements with a dc-SQUID", cond-mat /0406622.
175. K. Shirashi, H. Tamura and T. Takayanagi, "Theoretical design of a ferromagnet based on quantum dot superlattices", *Physica E* **24**, 107 (2004).
176. M. Kawamura, H. Yaguchi, N. Kikugawa, Y. Maeno and H. Takayanagi, "Tunneling properties at the interface between superconducting Sr<sub>2</sub>RuO<sub>4</sub> and a Ru micro-inclusion" *J. Phys. Soc. Jpn.* **74**, No.2, p.531-534 (2005).
177. A. Richter, K. Matsuda, T. Akazaki, T. Saku, H. Tamura, Y. Hirayama, and H. Takayanagi, "Transport properties of a lateral semiconductor quantum dot defined by a single connected metallic front-gate", *Physica E* **25**, 472-478 (2005).
178. T. Akazaki, H. Nakano, J. Nitta, and H. Takayanagi, "Observation of enhanced thermal noise due to multiple Andreev reflection in ballistic InGaAs-based superconducting weak links", *Appl. Phys. Lett.*, **86**, 132505 (2005).
179. B.-R. Choi, A. E. Hansen, T. Kontos, C. Hoffmann, S. Oberholzer, W. Belzig, and C. Schönenberger, T. Akazaki and H. Takayanagi, „Shot-noise and conductance measurements of transparent superconductor/two-dimensional electron gas junctions”, *Phys. Rev. B* **72**, 024501 (2005).
180. T. Kutsuzawa, H. Tanaka, S. Saito, H. Nakano, K. Semba and H. Takayanagi, "Coherent control of a flux qubit by phase-shifted resonant microwave pulses", *Appl. Phys. Lett.* **87**, 073501 (August, 2005).
181. M. Yamaguchi, S. Nomura, D. Sato, T. Akazaki, H. Tamura and H. Takayanagi "Photoluminescence measurements in Be- $\delta$ -doped back-gated quantum well", *Surface Science* **583**, 94 (2005).
182. T. Mouris, H. Nakano and H. Takayanagi, "Time evolution and decoherence of entangled states realized in coupled superconducting flux qubits", cond-mat/0501581.
183. V.M. Krasnov, T. Bauch, S. Intiso, E. Hurfeld, T. Akazaki, H. Takayanagi and P. Delsing, "Collapse of thermal activation in moderately damped Josephson junctions", *Phys. Rev. Lett.* **95**, (2005) 157002.
183. S. Saito, T. Meno, M. Ueda, H. Tanaka, K. Semba and H. Takayanagi, "Parametric control of a superconducting flux qubit", *Phys. Rev. Lett.* **96**, 107001 (March, 2006).
184. J. Johannson, S. Saito, T. Meno, H. Nakano, M. Ueda, K. Semba and H. Takayanagi,

- “Vacuum Rabi Oscillations in a Macroscopic Superconducting Qubit LC Oscillator System”, Phys. Rev. Lett. **96**, 127006 (March, 2006).
185. S. Sasaki, S. Kang, K. Kitagawa, M. Yamaguchi, S. Miyashita, T. Maruyama, H. Tamura, T. Akazaki, Y. Hirayama, and H. Takayanagi, “Non-local Control of the Kondo Effect in a Double Quantum Dot - Quantum Wire Coupled System”, Phys. Rev. B Rapid Commun. **73** (2006) 161303-1 - 161303-1 (R).
186. S. Nomura, M. Yamaguchi, T. Akazaki, H. Tamura, H. Takayanagi and Y. Hirayama, ”Electron-hole states in the fractional quantum Hall regime probed by photoluminescence”, Physica E **34** (April, 2006) 292-295.
187. S. Sasaki, S. Kang, K. Kitagawa, M. Yamaguchi, S. Miyashita, T. Maruyama, H. Tamura, T. Akazaki, Y. Hirayama, and H. Takayanagi, “Spin manipulation in a double quantum-dot-quantum-wire coupled system”, J. Vac. Sci. Technol. B **24** (August, 2006) 2024-2028.
188. M. Yamaguchi, S. Nomura, K. Miyakoshi, H. Tamura, T. Akazaki, and H. Takayanagi, “Controlling electric field and electron density in a double-gated GaAs/AlGaAs quantum well”, J. Appl. Phys., **100** (October, 2006) 113523-1 - 113523-7.
189. I. Suemune, T. Akazaki, K. Tanaka, M. Jo, K. Uusugi, M. Endo, H. Kumano, E. Hanamura, H. Takayanagi, M. Yamanishi and H. Kan, “Superconductor-Based Quantum-Dot Light-Emitting Diodes: Role of Cooper Pairs in Generating Entangled Photon Pairs”, Japan. J. Appl. Phys. **45** (December, 2006) pp.9264-9271.
190. H Tamura, S Nomura, M Yamaguchi, T Akazaki, H Takayanagi, P Mohan, J Motohisa and T Fukui, “Magneto-Optics of GaAs Quantum Wire Lattices Grown by Selective-Area MOVPE”, J. Phys.: Conf. Ser. 38, p130-133 (2006).
191. H. Yaguchi , K. Takizawa , M. Kawamura, N. Kikugawa, Y. Maeno, T. Meno, T. Akazaki , K. Semba and H. Takayanagi ” Tunnelling Spectroscopy of the Interface between Sr<sub>2</sub>RuO<sub>4</sub> and a Single Ru Micro-Inclusion in Eutectic Crystals”, J. Phys. Soc. Jpn, **75** No.12, (December 2006) 125001.
192. K. Kakuyanagi, T. Meno, S. Saito, H. Nakano, K. Semba, H. Takayanagi, F. Deppe and A. Shnirman, “Dephasing of a Superconducting Flux Qubit”, Phys. Rev. Lett., **98** (January, 2007) 047004-1 – 047004-4.
193. Y-L Zhong, H. Nakano, T. Akazaki, K. Kanzaki, Y. Kobayashi and H. Takayanagi, ” Superconducting proximity correction to conductance and magnetoconductance fluctuations in random network carbon nanotubes”, Physica E **40** (2007, July) 169-174.
194. F. Deppe, M.Mariantoni, E.P.Menzel, S.Saito, K.Kakuyanagi, H.Tanaka, T. Meno, K.Semba, H.Takayanagi, R. Gross, “hase coherent dynamics of a superconducting flux qubit with capacitive bias readout”、 Phys. Rev. B **76**, 214503-1 - 214503-19 (December, 2007).
195. T. Akazaki, M. Yamaguchi, K. Tsumura, S. Nomura, H. Takayanagi, “Negative photoconductivity in In0.52Al0.48As/In0.7Ga0.3As heterostructures”, Physica E **40** (2008 March) 1341-1343.
196. S. Sasaki, H. Tamura, S. Miyashita, T. Maruyama, T. Akazaki, Y. Hirayama, H. Takayanagi, “Interplay between electrostatic and tunnel couplings in an independently contacted double quantum dot-quantum wire coupled device”, Physica E **40** (2008, March) 1292-1294.
197. Y-L Zhong, H. Nakano, T. Akazaki, K. Kanzaki, Y. Kobayashi and H. Takayanagi, “Superconducting proximity effect and reentrant behaviors in random network carbon nanotubes”, Physica C, **468** (April 2008) 709-713.
198. F. Deppe, M. Mariantoni, E.P. Menzel, A. Marx, S. Saito, K. Kakuyanagi, H. Tanaka, T.

- Meno, K. Semba, H. Takayanagi, E. Solano and R. Gross, "Two-photon probe of the Jaynes-Cummings model and controlled symmetry breaking in circuit QED", *Nature Physics*, **4** (2008) 686-691.
199. R. Inoue, H. Takayanagi, M. Jo, T. Akazaki, K. Tanaka & I. Suemune, "Differential resistance oscillations with microwave irradiation in a superconductor-semiconductor junction", *J. of Physics Conf. Series* **109**, 012033 (2008).
200. T. Akazaki, H. Hashiba, M. Yamaguchi, K. Tsumura, S. Nomura and H. Takayanagi, "Interplay between Negative Photoconductivity and Enhanced Andreev Reflection in InGaAs-based S-Sm-S Junctions when Exposed to Infrared Light", *Journal of Physics: Conference Series* **150** (March, 2009) 052004.
201. K Tsumura, S Nomura, T Akazaki and H Takayanagi, " Optical imaging of the transport properties of S-Sm-S junctions", *Journal of Physics: Conference Series* **150** (March, 2009) 052273.
202. T. Akazaki, Y. Sawa, T. Yokoyama, Y. Tanaka, A. A. Golubov, H. Munekata , N. Nishizawa and H. Takayanagi, "Spin-polarized Carrier Injection Effect in Ferromagnetic Semiconductor/Diffusive Semiconductor/Superconductor Junctions", *Journal of Physics: Conference Series* **150** (March, 2009) 022085.
203. H. Nakano, S. Saito, K. Semba and H. Takayanagi, "Quantum Time-evolution in Qubit Readout Process with a Josephson Bifurcation Amplifier", *Phys. Rev. Lett.* **102** (June, 2009), 257003-1 -4.
204. Y. Asano, I. Suemune, H. Takayanagi, and E. Hanamura, "Luminescence of a Cooper Pair", *Phys. Rev. Lett.* **103** (October, 2009) 187001.
205. R. Inoue, H. Takayanagi, T. Akazaki, K. Tanaka and I. Suemune, "Transport characteristics of a superconductor-based LED", *Supercond. Sci. Technol.* **23** (February, 2010) 034025 (4pp).
206. H. Takayanagi, T. Akazaki, N. Nishizawa, Y. Sawa, T. Yokoyama, Y. Tanaka, A. A. Golubov and H. Takayanagi,"Spin –Polarized Carrier Injection Effect in Ferromagnetic Semiconductor/Diffusive Semiconductor/Superconductor Junctions", Proceedings of 9<sup>th</sup> International Symposium on Foundations of Quantum Mechanics, ISQM-Tokyo'08 (2009) 118-123.
207. H. Takayanagi, R. Inoue, T. Akazaki, K. Tanaka and I. Suemune, "Superconducting Transport in an LED with Nb Electrodes", *Physica C* **470**, (2010) 814-817.
208. I. Suemune, Y. Hayashi, S. Kuramitsu, K. Tanaka, T. Akazaki, H. Sasakura, R. Inoue, H. Takayanagi, Y. Asano, E. Hanamura, S. Odashima, and H. Kumano "A Cooper-Pair Light-Emitting Diode: Temperature Dependence of Both Quantum Efficiency and Radiative Recombination Lifetime ", *Appl. Phys. Express* **3**, (2010) 054001-1 ~054001-3.
209. T. Akazaki, T. Yokoyama, Y. Tanaka, H. Munekata and H. Takayanagi, "Evaluation of spin polarization in p-In0.96Mn0.04As using Andreev reflection spectroscopy", *J. of Physics:Conference Series* **234** (2010, September) 042001
- 210 S.Kim, R. Ishiguro, M. Kamio, Y. Doda, E. Watanabe, D. Tsuya, K. Shibata, K. Hirakawa & H. Takayanagi, "  $\pi$  junction transition in InAs self-assembled quantum dot coupled with SQUID", *Appl. Phys. Lett.* **98** (2011, February) 063106.

211. S. Kim, R. Ishiguro, M. Kamio, Y. Doda, E. Watanabe, D. Tsuya, K. Shibata, K. Hirakawa, and H. Takayanagi, "Side-gate controlled electrical properties of superconducting quantum interference device coupled with self-assembled InAs quantum dot", Proceedings of the 30th International Conference on the Physics of Semiconductors (ICPS2010), COEX, Seoul, Korea, July 25~30, 2010.
212. R. Inoue, K. Muranaga, H. Takayanagi, E. Hanamura, M. Jo, T. Akazaki and I. Suemune, "Transport properties of Andreev polaron in superconductor-semiconductor-superconductor junction with superlattice structure", Phys. Rev. Lett., **106** (2011 April) 157002-1-4.
213. R. Inoue, H. Takayanagi, M. Jo, T. Akazaki and I. Suemune,"Transport properties of a superconductor-semiconductor junction with superlattice structure", Proceedings of the 30th International Conference on the Physics of Semiconductors (ICPS2010), COEX, Seoul, Korea, July 25~30, 2010.
- 214.T. Akazaki, T. Yokoyama,Y. Tanaka, H. Munekata and H. Takayanagi, "Evaluation of spin polarization in p-In0.96Mn0.04As using Andreev reflection spectroscopy including inverse proximity effect", Phys. Rev. B **83**(April, 2011) 155212-1-9
215. H. Sasakura, S. Kuramitsu, Y. Hayashi, K. Tanaka, T. Akazaki, E. Hanamura, R. Inoue, H. Takayanagi, Y. Asano, H. Kumano, and I. Suemune, "Enhanced electroluminescence of a Nb/n-InGaAs/p-InP superconductor/semiconductor-diode light emitting device", Phys.Rev. Lett., **107** (2011) 157403
216. T. Nishio, T. Kozakai, S. Amaha, M. Larsson, H.A. Nilsson, H Q Xu, G. Zhang, K. Tateno, H. Takayanagi and K. Ishibshi,"Supercurrent through InAs nanowires with highly transparent superconducting contacts", Nanotechnology **22** (2011) 445701.
217. I. Suemune,H. Sasakura, Y. Hayashi, K. Tanaka, T. Akazaki, Y. Asano, R. Inoue, H. Takayanagi, E. Hanamura, Jae-Hoon Huh, C. HermannStadter, S. Odashima, and H. Kumano,"Cooper-Pair Radiative Recombination in Semiconductor Heterostructures: Impact on Quantum Optics and Optoelectronocs", Jpn. J. Appl. Phys. **51** (2012) 010114
216. M.S. Anwar, T. Nakamura, S. Yonezawa, M. Yakabe, R. Ishiguro, H. Takayanagi, and Y. Maeno, "Anomalous switching in Nb/Ru/Sr<sub>2</sub>RuO<sub>4</sub> topological junctions by chiral domain wall motion", Scientific Reports **3**(2013) 2480.
217. R. Inoue, H. Takayanagi, T. Akazaki, K. Tanaka, H. Sasakura,I. Suemune, "Carrier flow and nonequilibrium superconductivity in superconductor-based LEDs", ,Applied Phys. Express.**7**(2014) 073101.
218. S. Tsuchiya, M. Matsuno, R. Ishiguro, H. Kashiwaya, S. Kashiwaya, S. Nomura, H. Takayanagi, and Y. Maeno, "Magnetization of a Mesoscopic Superconducting Sr<sub>2</sub>RuO<sub>4</sub> on Micro-dc-SQUIDs, J. Phys. Soc. Jpn, 83(9) (2014) 094715.
219. Y. Nago, R. Ishiguro, T. Sakurai, M. Yakabe, T. Nakamura, S. Yonezawa, S. Kashiwaya, H. Takayanagi, and Y. Maeno, "Superconducting transition of Ru in SQUIDs with Nb/Ru/Sr<sub>2</sub>RuO<sub>4</sub> junctions", J. Phys. Conf. Ser. **568**, (2014) 022031.

220. R. Ishiguro, E. Watanabe, S. Sakuma, T. Shinozaki, S. Tsuchiya, Y. Nago, H. Osato, D. Tsuya, H. Kashiwaya, S. Kashiwaya, S. Nomura, H. Takayanagi, and Y. Maeno, “Development of nano and micro SQUIDs based on Al tunnel junctions”, *J. Phys. Conf. Ser.* **568**, (2014) 022019.
221. R. Ishiguro, T. Sakurai, M. Yakabe, T. Nakamura, S. Yonezawa, S. Kashiwaya, H. Takayanagi, and Y. Maeno, “Broken time-reversal symmetry in a SQUID based on chiral superconducting Sr<sub>2</sub>RuO<sub>4</sub>”, *J. Phys. Conf. Ser.* **568**, (2014) 022020.
222. K. Tsumura, N. Furukawa, H. Ito, E. Watanabe, D. Tsuya, and H. Takayanagi, “Non-equilibrium photoexcited carrier dynamics and superconducting transport in graphene-based Josephson junction”, submitted in *Appl. Phys. Lett.*
223. D. Sakuma, T. Shinozaki, Y. Nago, R. Ishiguro, S. Kashiwaya, S. Nomura, K. Kono, Y. Maeno, and H. Takayanagi, “Development of Micro-SQUID Array for Simultaneous Measurements of Magnetization Spatial Distribution”, to be published in *J. Low Temp. Phys.*
224. Y. Nago, T. Shinozaki, T. Sato, D. Sakuma, R. Ishiguro, H. Kashiwaya, S. Kashiwaya, S. Nomura, K. Kono, Y. Maeno, and H. Takayanagi, “Development of Magnetization Measurement Device using Micro-SQUIDs and a Mesoscopic Sr<sub>2</sub>RuO<sub>4</sub> Superconductor”, to be published in *J. Low Temp. Phys.*
225. Y. Shibata, S. Nomura, H. Kashiwaya, S. Kashiwaya, R. Ishiguro and H. Takayanagi, “Imaging of current density distributions with a Nb weak-link scanning nano-SQUID microscope”, *Scientific Reports* **5**, 15097 (2015).