Curriculum Vitae

Name: Valery P. Koshelets **Date of birth:** 14 of February 1950

Education and degrees

Education (*degrees, dates, universities)*

2003	Professor, Institute of Radio Engineering and Electronics, Russian Academy of Science,
1990	Dr. Sci. (Physical Electronics), IREE, Russia
1978	Ph.D. (Radio Physics), IREE, Russia
1973	M.Sc. in Moscow State University, Russia

Current and previous employments

2004 -	Head of the Laboratory of superconducting devices for signal detection and processing, Kotelnikov Institute of Radio Engineering and Electronics (IREE), Moscow
1992 - 2004	Principal scientific researcher, IREE, Moscow
1986 - 92	Leading scientific researcher, IREE, Moscow
1984 - 86	Senior scientist, IREE, Moscow
1976 - 84	Scientific researcher, IREE, Moscow
1973 - 76	Postgraduate student, IREE, Moscow

Key data for publications/citations during the last five years

Total number of publications: ~270, 230 in peer-reviewed scientific journals; 40 in peer-reviewed conference proceedings, 3 chapters in books; 5 Russian Federation Patents.

Citation report [Web of science 2017.03.21] Results found: 232, Times Cited: 2015, h-index: 23.

Selected publications for the last five years (2012-2016) 87 in total: 57 in peer-reviewed scientific journals indexing by Web of Science or Scopus; + 3 patens.

1. O. Kizilaslan,F. Rudau, R. Wieland, J.S. Hampp, X.J. Zhou, M. Ji, O. Kiselev, N. Kinev, Y. Huang, L.Y. Hao, A. Ishii, T. Hatano, V.P. Koshelets, P.H. Wu, H.B. Wang, D. Koelle, and R. Kleiner, «Tuning THz emission properties of $Bi_2Sr_2CaCu_2O_{8+}$ intrinsic Josephson junction stacks by charge carrier injection», Superconductor Science and Technology, 30, 034006, 7 pages, January 2017; DOI: 10.1088/1361-6668/aa55ae.

2. Andrey Khudchenko, Andrey M. Baryshev, Kirill Rudakov, Valery Koshelets, Pavel Dmitriev, Ronald Hesper, Leo de Jong, "High Gap Nb-AlN-NbN SIS Junctions for Frequency Band 790-950 GHz", IEEE Transactions on Terahertz Science and Technology, vol. 6, No 1, pp. 127-132; (2016); doi: 10.1109/TTHZ.2015.2504783.

3. F. Rudau, M. Tsujimoto, B. Gross, T.E. Judd, R. Wieland, E. Goldobin, N. Kinev, J. Yuan, Y. Huang, M. Ji, X.J. Zhou, D.Y. An, A. Ishii, R.G. Mints, P.H. Wu, T. Hatano, H.B. Wang, V.P. Koshelets, D. Koelle, and R. Kleiner, "Thermal and electromagnetic properties of Bi2Sr2CaCu2O8 intrinsic Josephson junction stacks studied via one-dimensional coupled sine-Gordon equations", Phys. Rev. B 91, 104513 (2015); DOI: 10.1103/PhysRevB.91.104513.

4. V.P. Koshelets, P.N. Dmitriev, M.I. Faley, L.V. Filippenko, K.V. Kalashnikov, N.V. Kinev, O.S. Kiselev, A.A. Artanov, K.I. Rudakov, A. de Lange, G. de Lange, V.L. Vaks, M.Y. Li, H.B. Wang, "Superconducting Integrated Terahertz Spectrometers", IEEE Transactions on Terahertz Science and Technology, vol. 5, pp 687- 694, (July 2015); DOI: 10.1109/TTHZ.2015.2443500.

5. X.J. Zhou, J. Yuan, H. Wu, Z.S. Gao, M. Ji, D.Y. An, Y. Huang, F. Rudau, R. Wieland, B. Gross, N. Kinev, J. Li, A. Ishii, T. Hatano, V.P. Koshelets, D. Koelle, R. Kleiner, H.B. Wang, and P. H. Wu, "Tuning the Terahertz Emission Power of an Intrinsic Josephson-Junction Stack with a Focused Laser Beam", Phys. Rev. Applied, vol.3, issue4, Article number 044012, 6 pages April (2015); DOI:https://doi.org/10.1103/PhysRevApplied.3.044012.

6. M. Paramonov, M. Yu. Fominsky, V. P. Koshelets, B. Neumeier, D. Koelle, R. Kleiner, and E. Goldobin, «Radiation power and linewidth of a semiuxon-based Josephson oscillator», Applied Physics Letters, **104**, 062603 (2014); http://dx.doi.org/10.1063/1.4864320.

7. Philipp Jung, Susanne Butz, Michael Marthaler, Mikhail V. Fistul, Juha Leppäkangas, Valery P. Koshelets, Alexey V. Ustinov,. «A multi-stable switchable metamaterial», Nature Communications 5, Article number: 3730; doi:10.1038/ncomms4730.

8. Valery P. Koshelets, “Subterahertz sound excitation and detection by Long Josephson Junction”, Supercond. Sci. Technol. 27 (2014) 065010 (7pp); doi:10.1088/0953-2048/27/6/065010.

9. M. Ji, J. Yuan, B. Gross, F. Rudau, D.Y. An, M.Y. Li, X.J. Zhou, Y. Huang, H. C. Sun, Q. Zhu, J. Li, N. Kinev, T. Hatano, V.P. Koshelets, D. Koelle, R. Kleiner, W.W. Xu, B.B. Jin, H.B. Wang, and P.H. Wu, $Bi_2Sr_2CaCu_2O_8$ intrinsic Josephson junction stacks with improved cooling: Coherent emission above 1 THz, Applied Physics Letters **105**, 122602 (2014); doi: 10.1063/1.4896684.

10. Kinev N.K., Koshelets V.P., “Electrical contacts for superconducting Integrated Receiver”, Patent of Russian Federation № 2511669, registered on 07.02.2014.

11. Koshelets V.P., Filippenko L.V., Dmitriev P.N., “Tunable cryogenic local oscillator based on distributed tunnel Junction for Integrated Receivers”, Patent of Russian Federation № 2522711, registered on 21.05.2014.

12. Roberto Monaco, Valery P. Koshelets, Anna Mukhortova, and Jesper Mygind, “Self-field effects in window-type Josephson tunnel junction”, Supercond. Sci. Technol. **26,** 055021 (13 pages) 2013.

13. B. Gross, J. Yuan, D.Y. An, M.Y. Li, N. Kinev, X.J. Zhou, M.Ji, Y. Huang, T. Hatano, R.G. Mints, V.P. Koshelets, P. H. Wu, H. B. Wang, D. Koelle, and R. Kleiner, “Modeling the linewidth dependence of coherent terahertz emission from intrinsic Josephson junction stacks in the hot-spot regime”, Phys. Rev. B, **88**, 014524 (9 pages), 2013.

14. Konstantin V. Kalashnikov, Andrey V. Khudchenko, and Valery P. Koshelets, “Harmonic Phase Detector for Phase Locking of Cryogenic Terahertz Oscillator”, Appl. Phys. Lett. **103**, 102601 (2013).

15. S. Butz, P. Jung, L.V. Filippenko, V.P. Koshelets, and A.V. Ustinov, “A one-dimensional tunable magnetic metamaterial”, Optics Express, Vol. **21**, Issue 19, pp.22540-22548; (2013).

16. A. Vidiborskiy, V. P. Koshelets, L. V. Filippenko, S. V. Shitov, and A. V. Ustinov, “Ultra-compact tunable split-ring resonators”, Applied Physics Letters, **103**, 162602 (2013).

17. E. Ovchinnikova, S. Butz, P. Jung, V.P. Koshelets, L.V. Filippenko, S.V. Shitov, A. Averkin, and A.V. Ustinov, “Design and experimental study of superconducting left-handed transmission lines with tunable dispersion”; Supercond. Supercond. Sci. Technol. **26** (2013) 114003 (6pp).

18. R. Monaco, J. Mygind, and V. P. Koshelets, «Long Josephson tunnel junctions with doubly connected electrodes», Phys. Rev. B, **81**, 094514 (13 pages), 2012.

19. de Lange, A., Birk, M., de Lange, G., Friedl-Vallon, F., Kiselev, O., Koshelets, V., Maucher, G., Oelhaf, H., Selig, A., Vogt, P., Wagner, G., and Landgraf, J.: HCl and ClO in activated Arctic air; first retrieved vertical profiles from TELIS submillimetre limb spectra, Atmos. Meas. Tech., **5,** 487-500, doi:10.5194/amt-5-487-2012, 2012.

20. Mengyue Li, Jie Yuan, Nickolay Kinev, Jun Li, Boris Gross, Stefan Gurenon, Akira Ishii, Kazuto Hirata, Takeshi Hatano, Dieter Koelle, Reinhold Kleiner, Valery P. Koshelets, Huabing Wang, and Peiheng Wu, “Linewidth dependence of coherent terahertz emission from $Bi_2Sr2CaCu_2O_8$ intrinsic Josephson junction stacks in the hot-spot regime”, Physical Review B **(Rapid Communications) 86**, 060505(R) (2012)

21. A.V. Khudchenko, K.V. Kalashnikov, V.P. Koshelets, “Phase-locking System for Cryogenic Local Oscillator” Patent of Russian Federation № 2450435, registered on May 10 2012.

International experience

The Netherlands: Space Research Organization of the Netherlands, Groningen (**Guest researcher**) 1993 – 2013 (in total ~ 4 years).

Denmark: Technical Univ. of Denmark, Lyngby (**Guest researcher**) 1987 – 2007, (in total ~ 2 years).

Japan: National Institute of Advanced Industrial Science and Technology, Tsukuba (**Research fellow**), 2001 – 2003, (in total ~ 0.7 years)

Italy: Salerno University, Istituto di Cibernetica del CNR (**Guest researcher**) 1986 – 1997, (in total ~ 1 year).

Sweden: Chalmers Univ. Techn. Göteborg (**Guest researcher**) 1985- 1992 (in total ~ 1 year1).

Denmark: Technical Univ. of Denmark, Lyngby (**Guest researcher**) Mar. 1982 –May 1982

Invited talks at international conferences, symposia, workshops: about 50.