



APL Prof. Dr. Yuri A. Genenko, D. Sc.

Technical University of Darmstadt
Dept. of Materials and Geo- Sciences
Division of Materials Modelling
Otto-Berndt Str. 3, 64287 Darmstadt, Germany

Tel.: +49 (0)6151 16 21898
e-mail: genenko@mm.tu-darmstadt.de

Personal Data

Date of birth: September 17, 1958
Marital status: Married
Children: 2
Nationality: Ukrainian and German

Education and Degrees

1965-1975 Secondary School №17, Donetsk, Ukraine. Secondary Education Certificate awarded with a golden medal
1975-1980 Physics Department of the Donetsk State University. Diploma in Physics with distinction
1982-1985 Donetsk Institute for Physics and Technology, National Academy of Sciences of Ukraine, Donetsk, Ukraine. Ph.D. student
1987 Ph. D. in Theoretical Physics from the Donetsk State University
1995 Doctor of Science degree (D. Sc.) from the Institute of Metal Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine
1996 Intensive course of German language (4 months) at the Goethe Institute Goettingen
2011 Habilitation to PD (Private Docent) title, Technical University of Darmstadt
Title "Macroscopic Electromagnetic Properties of Superconductor/Soft-Magnet Heterostructures"

Employment

1985 - 1996 Engineer, Research Fellow, then Senior Research Fellow (since 1992) at the Donetsk Institute for Physics and Technology, Donetsk, Ukraine
1992 - 1996 Lecturer at the Donetsk State University (part-time)
1993 - 1996 Lecturer at the Donetsk Open University (part-time)
1996 - 1998 Post Doc at the Institute for Metal Physics, University of Goettingen
1998 - 1999 Research Associate at the Institute for Materials Physics, University of Goettingen, then at the Center for Smart Materials GmbH, Goettingen.
1999 - Research Associate at the Institute of Materials Science, Technical University of Darmstadt (since 2018 APL Professor)

Awards, Prizes, Fellowships

1993 National Prize in Physics for young scientists of Ukraine
1994 DAAD Fellowship for visiting the University of Goettingen, 01.09-30.10.1994
1996 - 1998 Alexander von Humboldt-Fellowship for the research stay at the University of Goettingen
2008 Best work award at the 9th European Conference on Applications of Polar Dielectrics (ECAPD IX), August 2008, Rome

Languages spoken

Russian and Ukrainian mother tongue
English fluent
German fluent

Scientific and pedagogical achievements**Publications**

Total: 201; Contributions to books: 4; Papers in peer-reviewed journals: 96; Extended conference proceedings (in refereed journals): 27; Conference short abstracts: 74

Scientific presentations (given in person)

Total: 107; Invited speaker: 23; Contributed speaker: 31; Posters: 53

Teaching experience

Lectures at the Donetsk Open University: “Classical Electrodynamics” and “Statistical physics” (1993-1996)

Lectures at the Donetsk State University: “Superconductivity” (1992-1996)

Lectures on „Theoretical Methods of Materials Science“ at the Technical University of Darmstadt (2000-2011)

Seminars and exercises on “Quantum-physical foundations of materials science” at the Technical University of Darmstadt (2001-2010).

Seminars and exercises on “Materials science II” at the Technical University of Darmstadt (2002-2006).

Seminars and exercises on “Materials science IV” at the Technical University of Darmstadt (2007-2009).

Practical course on “Materials Science III: Dielectric response and optical properties of materials” (2004-2021), Technical University of Darmstadt

Practical course on “Materials Science for Physicists” (2004-2016), Technical University of Darmstadt

Lectures on „Theoretical Concepts and Methods in Materials Science“ at the Technical University of Darmstadt (2012-2021)

Lectures on „Mathematical Methods of Materials Science“ at the Technical University of Darmstadt (2012-2021)

Scientific evaluation

Editorial Board Member: Scientific Reports (Nature Group)

Reviewer for the journals: Nature Materials, Physical Review Letters, Physical Review B, Applied Physics Letters, Journal of Applied Physics, Superconductor Science and Technology, Physica C, Scripta Materialia.

Expert/Evaluator for the Ministry of Science of the Republic of Croatia

Memberships

Ukrainian Physical Society (since 1994)

American Physical Society (since 1999)

European Society for Applied Superconductivity (since 1999)

IEEE-UFFC Society (since 2018)

German-Ukrainian Academic Society (since 2018)

Funding ID**Granted/Running projects**

2019-2022 Cooperative kinetics of defects and domain structures in ferroelectrics (DFG – Project number 405631895)

Past projects

1992-1993 Transport properties of layered superconductors“, supported by the National Committee for Science and Technique of Ukraine, Grant N 91011

1994-1995 „Nonstationary phenomena in current-carrying superconductors“, supported by the National Committee for Science and Technique of Ukraine, Grant No. 9.1.9

2003-2006 „Electrodynamics of macroscopic magnet/superconductor-hetero-systems“, DFG GE 1171/1-2

- 2005-2007 „Development of new technology for coated conductors able to carry “over-critical” current densities “, joint project with the University of Wollongong, Australia, and University of Oslo, Norway, Australian Research Council
- 2003-2014 Kinetic Modelling of the Charge Transfer in Organic Semiconductors and Ionic Conductors (Collaborative Research Centre (SFB 595) “Electric Fatigue in Functional Materials”,
- 2015-2018 Polarization switching in lead-free ferroelectrics: statistical theory and experiments (DFG – Project number 270195408).

Scientific presentations: invited and plenary talks

1. February 1998, Royal Institute of Technology, Stockholm, Sweden, Division of condensed matter physics. *Magnetic flux entry and instabilities in current carrying type-II superconductors.*
2. July 1998, NATO Advanced Research Workshop “Physics and Materials Science of Vortex States, Flux Pinning and Dynamics”, Kusadasi, Turkey. *„Flux instabilities in current-carrying type-II superconductors“*.
3. October 2000, Technical University of Darmstadt, FG Theory of Electromagnetic Fields. *Improvement of current-carrying ability of planar superconductors by magnetic shielding.*
4. October 2001, University of Erlangen-Nürnberg, Institute of Physics III. *Current distributions in magnetically shielded superconductor strips and Josephson junctions.*
5. October 2002, University of Goettingen, Institute for Applied Mathematics. *Magnetic screening as a way to loss-free current enhancements in superconductors: analytical and numerical approaches.*
6. September 2004, NATO Advanced Research Workshop “Vortex dynamics in superconductors and other complex systems”, Yalta, Ukraine. *Transport properties of superconductor/magnet composites.*
7. March 2009, Donetsk Institute for Physics and Technology, Ukraine. *“Mechanisms of aging in acceptor doped ferroelectrics”*.
8. Mai 2010, Ecole Polytechnique Fédérale de Lausanne, *“Dynamics of polarization reversal in virgin and fatigued ferroelectric ceramics”*.
9. Mai 2011, International Conference “Chemical Thermodynamics and Kinetics”, Donetsk, Ukraine. *“Slow kinetics of charged defects in ferroelectric perovskites”*.
10. July 2012, International Symposium on Applications of Ferroelectrics, Aveiro, Portugal, *“Universal switching behaviour of disordered ferroelectrics”*.
11. October 2013, Niigata University, Japan, *“Macroscopic electromagnetic properties of superconductor/magnet-heterostructures”*.
12. October 2013, Tokyo University of Technology, Japan, *“Models of dynamic polarization response of polycrystalline ferroelectrics”*.
13. June 2014, Electroceramics 2014, Bucharest, Romania, *“Switching dynamics of ferroelectric ceramics: composition, crystal- and microstructure effects”*.
14. October 2015, Institute of Physics, NAS Ukraine, Kyiv. *“Kinetics of polarization switching in disordered bulk ferroelectrics”*.
15. February 2016, Physikzentrum Bad Honnef, 608. WE-Heraeus-Seminar on Superconducting Materials on Their Way from Physics to Applications, *“Magnet-superconductor heterostructures: challenges and perspectives”*.
16. May 2018, University of Zaragoza, Spain, *“Polarization switching kinetics in polycrystalline ferroelectrics”*
17. October 2018, *“Polarization switching kinetics in polycrystalline ferroelectrics”*, NAS Ukraine, Kyiv, Conference to 100th Anniversary of the National Academy of Sciences of Ukraine.
18. December 2018, University of Ulm, *“Polarization switching in polycrystalline ferroelectrics: stochastic models and numerical simulations”*.
19. June 2019, Institute of Physics, NAS Ukraine, Kyiv. *“Stochastic sequential switching processes in polarization kinetics of polycrystalline ferroelectrics”*.

20. December 2019, Shibaura Institute of Technology, Tokyo. Symposium on International Collaboration Project on Superconducting AC Loss Reduction Based on Extreme Technologies. "*On the possibility to control critical currents and ac losses in superconductors using magnetic environments*".
21. August 2020, Electroceramics XVII, Technical University of Darmstadt. "*Stochastic models of sequential and parallel switching processes in tetragonal and rhombohedral ferroelectrics*".
22. December 2020, 33rd International Symposium on Superconductivity, Tsukuba, Japan, "*Critical currents and AC losses in superconductor/paramagnet heterostructures*".
23. January 2021, Electronic Materials and Applications 2021 (virtual only), American Ceramic Society, "*Stochastic models of switching processes in tetragonal, rhombohedral and orthorhombic ferroelectrics*".

Publications

Contributions to books

- B1. S.B. Borisov, Y.A. Genenko, A.Yu. Zakharov and Ya.Ya. Sherbak, "*Electron structure of impurity complexes in semiconductors*", in: Doped semiconductors, Ed. N.Kh. Abrikosov (Moscow: Nauka, **1982**), pp. 5-9 (5 pages).
- B2. Y.A. Genenko and Yu.M. Ivanchenko, "*Current carrier's pairing on the nonstoichiometric oxygen*", in: Physical problems of high-T_c superconductivity, Ed. V.M. Loktev (Kiev, Naukova Dumka, **1990**), pp. 116-134 (19 pages).
- B3. Y.A. Genenko, "*An exact solution for the current self-field entry into a type-II superconductor*", in: Applied superconductivity, Ed. H.C. Freyhardt (Göttingen, **1993**), pp. 733-736 (4 pages).
- B4. Y.A. Genenko, P. Troche, J. Hoffmann and H.C. Freyhardt, "*Flux instabilities in current-carrying type-II superconductors*", in: Physics and materials science of vortex state dynamics and flux pinning, NATO ASI Series, Eds. R. Kossowsky, V.M. Pan and Z. Durusoy (Kluwer, Dordrecht, **1999**), pp. 173-204 (32 pages).

Papers in peer-reviewed journals

- P1. Y.A. Genenko and Y.M. Ivanchenko, "*Quasilocal levels in tunnel junctions*". Fiz. Nizk. Temp. 12 (**1986**) 422-425 [Sov. Low Temp. Phys. 12 (**1986**) 240-242].
- P2. Y.A. Genenko and Y.M. Ivanchenko, "*Exact calculation of the current in the tunnel Hamiltonian method*". Teor. Mat. Fiz. 69 (**1986**) 142-148 [Sov.Theor. Math. Phys. 69 (**1986**) 1056-1061].
- P3. Y.A. Genenko and Y.M. Ivanchenko, "*Anomalous temperature dependence of the tunnel conductivity*". Fiz. Tverd. Tela 28 (**1986**) 657-661 [Sov. Phys. Solid. St. 28 (**1986**) 367-369].
- P4. Y.A. Genenko and Y.M. Ivanchenko, "*Effect of impurities on current fluctuations in a tunnel junction*". Fiz. Tverd. Tela 29 (**1987**) 1174-1180 [Sov. Phys. Solid. St. 29 (**1987**) 669-673].
- P5. Y.A. Genenko and Y. M. Ivanchenko, "*Noise anomalies in a small tunnel junction at low temperatures*". Phys. Lett. A 126 (**1987**) 201-204.
- P6. A.K. Asadov, Y.A. Genenko and P.N. Mikheenko, "*Current-voltage characteristics and elementary dissipative formations in thin-film granulated superconductors*". Fiz. Tverd. Tela 30 (**1988**) 1448-1454 [Sov. Phys. Solid. St. 30 (**1988**) 835-839].
- P7. Y.A. Genenko and Y.M. Ivanchenko, "*Quantum noise in a small tunnel junction*". Fiz. Met. Metalloved. 67 (**1989**) 664-668 [Sov. Phys. of Metals and Metallography].
- P8. Y.M. Ivanchenko, L.V. Belevtsov, Y.A. Genenko and Y.V. Medvedev, "*Squeezed vortex in a layered superconductor*". Physica C 193 (**1992**) 291-302.

- P9. Y.A. Genenko and Yu.V. Medvedev, „*Penetration of a magnetic field into a layered superconducting medium*“. Sverkhprovodimost 5 (1992) 46-49 [Superconductivity (Moscow) 5 (1992) 46-49].
- P10. Y.A. Genenko, „*Quasi-two-dimensional magnetic vortex in a layered superconducting structure*“. Sverkhprovodimost 5 (1992) 1402-1408 [Superconductivity (Moscow) 5 (1992) 1376-1381].
- P11. A.K. Asadov, Y.A. Genenko, G.G. Levchenko, V.A. Markovich, Y.V. Medvedev, I.M. Fita and A.V. Pashchenko, „*Dimensional crossover in the diamagnetic behaviour of a GdBaCuO single crystal as the oxygen content is varied*“. Sverkhprovodimost 5 (1992) 1629-1636 [Superconductivity (Moscow) 5 (1992) 1575-1581].
- P12. Y.A. Genenko and Yu.V. Medvedev, „*Suppression of the critical current in highly anisotropic layered superconductors*“. Phys. Lett. A 167 (1992) 427-431.
- P13. Y.A. Genenko and Yu.V. Medvedev, „*Convective heat transfer in layered high-Tc superconductors*“. Pisma Zh. Eksp. Teor. Fiz. 55 (1992) 281-284 [JETP Lett. 55 (1992) 279-283].
- P14. A.K. Asadov, Y.A. Genenko, G.G. Levchenko, V.A. Markovich, Y.V. Medvedev, I.M. Fita and A.V. Pashchenko, „*Controllable dimensional crossover of magnetic behaviour in single crystal GdBaCuO with variable oxygen content*“. Physica C 206 (1993) 119-126.
- P15. P.N. Mikheenko, Y.A. Genenko, Y.V. Medvedev, A.I. Usoskin and I.N. Chukanova, „*Current-induced decoupling of superconducting planes in orientated YBaCuO thick films*“. Physica C 212 (1993) 332-338.
- P16. Y.A. Genenko, Y.V. Medvedev and G.V. Shuster, „*Current-phase relation in layered cuprates*“. Pisma Zh. Eksp. Teor. Fiz. 57 (1993) 705-707 [JETP Lett. 57 (1993) 717-719].
- P17. Y.A. Genenko, „*Relaxation of magnetic vortex rings in superconducting cylinders: some universal features*“. Physica C 215 (1993) 343-350.
- P18. Y.A. Genenko, „*Vortex helicoid in a superconducting cylinder in a longitudinal magnetic field*“. Pisma Zh. Eksp. Teor. Fiz. 59 (1994) 807-811 [JETP Lett. 59 (1994) 841-846].
- P19. Y.A. Genenko, „*Magnetic self-field entry into a current-carrying type-II superconductor*“. Phys. Rev. B 49 (1994) 6950-6957.
- P20. Y.A. Genenko, „*Magnetic self-field entry into a current-carrying type-II superconductor. II. Helical vortices in a longitudinal magnetic field*“. Phys. Rev. B 51, (1995) 3686-3695.
- P21. Y.A. Genenko and A.V. Snezhko, „*Screening properties of a layered medium of Pearl's superconducting films*“. Fiz. Tverd. Tela 37 (1995) 1545-1547 [Phys. Solid St. 37 (1995) 838-839].
- P22. Y.A. Genenko, „*Spiral instability of a longitudinal magnetic vortex in a current-carrying thin superconducting film*“. JETP Lett. 62 (1995) 422-427 [Pisma Zh. Eksp. Teor. Fiz. 62 (1995) 411-416].
- P23. Y.A. Genenko, „*Comment on ,Flux flow and flux cutting in type-II superconductors carrying a longitudinal current‘‘*“. Phys. Rev. B 53 (1996) 9473-9474.
- P24. Y.A. Genenko, „*Helical instability of a magnetic flux line in a current-carrying superconducting film*“. Phys. Rev. B 53 (1996) 11757-11763.
- P25. Y.A. Genenko, A.V. Snezhko, P. Troche, J. Hoffmann and H.C. Freyhardt, „*Magnetic self-field entry into a current-carrying type-II superconductor. III. General criterion of penetration for an external field of arbitrary direction*“. Phys. Rev. B 57 (1998) 1164-1172.
- P26. Y.A. Genenko, P. Troche, J. Hoffmann and H.C. Freyhardt, „*Chain model for the spiral instability of the force-free configuration in thin superconducting films*“. Phys. Rev. B 58 (1998) 11638-11651.
- P27. Y.A. Genenko, A. Usoskin and H.C. Freyhardt, „*Large predicted self-field critical current enhancements in superconducting strips using magnetic screens*“. Phys. Rev. Lett. 83 (1999) 3045-3048.
- P28. Y.A. Genenko and H.C. Freyhardt, „*Surface barrier effect on magnetization of a current-carrying type-II superconductor*“, Physica C 339 (2000) 201-208.

- P29. Y.A. Genenko, A. Snezhko and H.C. Freyhardt, „Overcritical states of a superconductor strip in a magnetic environment“, Phys. Rev. B 62 (2000) 3453-3472.
- P30. Y.A. Genenko and A. Snezhko, „Superconductor strip near a magnetic wall of finite thickness“, J. Appl. Phys. 92 (2002) 357-360.
- P31. Y.A. Genenko, „Overcritical states of a superconductor strip in all-superconducting environments“, Phys. Rev. B 66 (2002) 184520 (1-8).
- P32. Y.A. Genenko and H. Rauh, „Enhancement of the current in a superconductor strip by means of curved superconducting shields“, Appl. Phys. Lett. 82 (2003) 2115-2117.
- P33. Y. A. Genenko, S.V. Yampolskii and A.V. Pan, „Virgin magnetization of a magnetically shielded superconductor wire: theory and experiment“, Appl. Phys. Lett. 84 (2004) 3921-3923.
- P34. H. Rauh, Y.A. Genenko and C.T. Rieck, „Nonlocal fluxon dynamics in long Josephson junctions with newtonian dissipative loss“, J. Physics: Cond. Matter 16 (2004) S2715–S2733.
- P35. S.V. Yampolskii, Y.A. Genenko and H. Rauh, „Distribution of the sheet current in a magnetically shielded superconducting filament“, Physica C 415 (2004) 151-157.
- P36. Y.A. Genenko, S.V. Yampolskii and H. Rauh, „Bean-Livingston barrier at a superconductor/magnet interface“, J. Phys.: Cond. Matter 17 (2005) L93-L101.
- P37. S.V. Yampolskii and Y.A. Genenko, „Entry of magnetic flux into a magnetically shielded superconductor filament“, Phys. Rev. B 71 (2005) 134519 (1-12).
- P38. F. Neumann, Yu.A. Genenko, R. Schmechel, and H. von Seggern, „Role of diffusion on SCLC transport in double injection devices“, Synthetic metals 150 (2005) 291-296.
- P39. D.C. Lupascu, Y.A. Genenko and N. Balke, „Aging in ferroelectrics“, J. Amer. Ceram. Soc. 89 (2006) 224-229.
- P40. F. Neumann, Y.A. Genenko and H. von Seggern, „The Einstein relation in systems with trap-controlled transport“, J. Appl. Phys. 99 (2006) 013704 (1-4).
- P41. F. Neumann, Y.A. Genenko, C. Melzer and H. von Seggern, „Self consistent theory of unipolar charge-carrier injection in metal/insulator/metal systems“, J. Appl. Phys. 100, (2006) 084511 (1-8).
- P42. Y.A. Genenko and D.C. Lupascu, „Drift of charged defects in local fields as aging mechanism in ferroelectrics“, Phys. Rev. B 75 (2007) 184107 (1-10).
- P43. Y.A. Genenko and D.C. Lupascu, „Erratum: Drift of charged defects in local fields as aging mechanism in ferroelectrics“ [Phys. Rev. B 75 (2007) 184107 (1-10)], Phys. Rev. B 76 (2007) 149907.
- P44. F. Neumann, Y.A. Genenko, C. Melzer, S.V. Yampolskii, and H. von Seggern, „Self-consistent analytical solution of a problem of charge-carrier injection at a conductor/insulator interface“, Phys. Rev. B 75 (2007) 205322 (1-10).
- P45. H. Rauh and Y.A. Genenko, „The effect of a superconducting surface layer on the optical properties of a dielectric photonic composite“, J. Phys.: Cond. Mat. 20 (2008) 145203 (1-15).
- P46. S.V. Yampolskii, Y.A. Genenko, C. Melzer, K. Stegmeier, and H. v. Seggern, „Bipolar charge carrier injection in semiconductor/insulator/conductor heterostructure: self-consistent consideration“, J. Appl. Phys. 104 (2008) 073719 (1-13).
- P47. Y.A. Genenko, „Space-charge mechanism of aging in ferroelectrics: an analytically solvable two-dimensional model“, Phys. Rev. B 78 (2008) 214103 (1-7).
- P48. Y.A. Genenko, H. Rauh, P. Krüger, and N. Narayanan, „Finite-element simulations of overcritical states of a magnetically shielded superconductor strip“, Supercond. Sci. Technol. 22 (2009) 055001 (1-14).
- P49. A. Schilling, D. Byrne, G. Catalan, K.G. Webber, Y.A. Genenko, J. F. Scott, and J. M. Gregg, „Domain Structures in Ferroelectric Nanodots“, Nano Lett. 9 (2009) 3359-3364.
- P50. Y.A. Genenko, J. Glaum, O. Hirsch, H. Kungl, M.J. Hoffmann, and T. Granzow, „Aging of poled ferroelectric ceramics as relaxation of an orientational glass state due to space-charge accumulation near grain boundaries“, Phys. Rev. B 80 (2009) 224109 (1-9).
- P51. Y.A. Genenko, S.V. Yampolskii, C. Melzer, K. Stegmeier, and H. v. Seggern, „Charge carrier injection into the insulating media: single particle versus mean-field approach“, Phys. Rev. B 81 (2010) 125310 (1-15).

- P52. S. Zhukov, S. Fedosov, J. Glaum, T. Granzow, Y.A. Genenko, and H. von Seggern, „Effect of bipolar electric fatigue on polarization switching in lead-zirconate-titanate ceramics“, J. Appl. Phys. 108 (2010) 014105 (1-7).
- P53. S. Zhukov, Y.A. Genenko and H. von Seggern, „Experimental and theoretical investigation on polarization reversal in unfatigued lead-zirconate-titanate ceramic“, J. Appl. Phys. 108 (2010) 014106 (1-6).
- P54. Y.A. Genenko, H. Rauh, “Hysteretic ac losses in a superconductor strip between flat magnetic shields”, Supercond. Sci. Technol. 23 (2010) 075007 (1-5).
- P55. S. Zhukov, Y.A. Genenko, O. Hirsch, J. Glaum, T. Granzow, and H. von Seggern, „Effect of bipolar electric fatigue on polarization switching in lead-zirconate-titanate ceramics“, Phys. Rev. B 82 (2010) 014109 (1-8).
- P56. S.V. Yampolskii, Y.A. Genenko, C. Melzer, and H. von Seggern, “Self-consistent model of unipolar transport in organic semiconductor diodes: accounting for a realistic density-of-states distribution”, J. Appl. Phys. 109 (2011) 073722 (1-5).
- P57. Y.A. Genenko, H. Rauh and P. Krüger, “Finite-element simulations of hysteretic ac losses in a bilayer superconductor/ferromagnet heterostructure subject to an oscillating transverse magnetic field”, Appl. Phys. Lett. 98, (2011) 152508 (1-3).
- P58. H.S. Ruiz, A. Badia-Majos, Y.A. Genenko, H. Rauh and S.V. Yampolskii, “Superconducting wire subject to synchronous oscillating excitations: Power dissipation, magnetic response, and low-pass filtering”, Appl. Phys. Lett. 100, (2012) 112602 (1-5).
- P59. J. Schüttrumpf, S. Zhukov, Y.A. Genenko, and H. von Seggern, “Polarization switching dynamics by inhomogeneous field mechanism in ferroelectric polymers”, J. Phys. D: Appl. Phys. 45 (2012) 165301 (1-6).
- P60. Y.A. Genenko, S. Zhukov, S.V. Yampolskii, J. Schüttrumpf, R. Dittmer, W. Jo, H. Kungl, M.J. Hoffmann, and H. von Seggern, “Universal polarization switching behavior of disordered ferroelectrics”, Adv. Funct. Mater. 22 (2012) 2058-2066.
- P61. J. Glaum, Y.A. Genenko, H. Kungl, L.A. Schmitt, and T. Granzow, “De-aging of Fe-doped lead-zirconate-titanate ceramics by electric field cycling: 180°- vs. non-180° domain wall processes”, J. Appl. Phys. 112 (2012) 034103 (1-9).
- P62. Y.A. Genenko, J. Wehner, and H. von Seggern, “Self-consistent model of polarization switching kinetics in disordered ferroelectrics”, J. Appl. Phys. 114 (2013) 084101 (1-6).
- P63. S. Zhukov, Y.A. Genenko, M. Acosta, H. Humburg, W. Jo, J. Rödel, and H. von Seggern. “Polarization dynamics across the morphotropic phase boundary in $Ba(Zr_{0.2}Ti_{0.8})O_{3-x}(Ba_{0.7}Ca_{0.3})TiO_3$ ferroelectrics”, Appl. Phys. Lett. 103 (2013) 152904 (1-5).
- P64. S. Zhukov, H. Kungl, Y.A. Genenko, and H. von Seggern. “Statistical Electric Field and Switching Time Distributions in PZT 1Nb2Sr Ceramics: Crystal- and Microstructure Effects”, J. Appl. Phys. 115 (2014) 014103 (1-13).
- P65. S.V. Yampolskii and Y.A. Genenko, “Cloaking effect in finite size coaxial magnet-superconductor structures”, Appl. Phys. Lett. 104 (2014) 033501 (1-4).
- P66. Y. Zuo, Y.A. Genenko, A. Klein, P. Stein, and B.X. Xu, “Domain wall stability in ferroelectrics with space charges”, J. Appl. Phys. 115 (2014) 084110 (1-10).
- P67. Y.A. Genenko, O. Hirsch, and P. Erhart, “Surface potential at a ferroelectric grain boundary due to asymmetric screening of depolarization fields”, J. Appl. Phys. 115 (2014) 104102 (1-13).
- P68. S.V. Yampolskii and Y.A. Genenko, “Magnetic cloaking by a paramagnet/superconductor cylindrical tube in the critical state”, Appl. Phys. Lett. 104 (2014) 143504 (1-5).
- P69. Y. Zuo, Y.A. Genenko, and B.X. Xu, “Charge compensation of head-to-head and tail-to-tail domain walls in barium titanate and its influence on conductivity”, J. Appl. Phys. 116 (2014) 044109 (1-6).
- P70. Y.M. Nikolaenko, Y.E. Kuzovlev, Y.V. Medvedev, N.I. Mezin, C. Fasel, A. Gurlo, L. Schlicker, T.J.M. Bayer, and Y.A. Genenko, “Macro- and microscopic properties of strontium doped indium oxide”, J. Appl. Phys. 116 (2014) 043704 (1-10).
- P71. A. Gassmann, S.V. Yampolskii, A. Klein, K. Albe, N. Vilbrandt, O. Pekkola, Y.A. Genenko, M. Rehahn, and H. von Seggern. “Study of electrical fatigue by defect engineering in organic light-emitting diodes”, Mater. Sci. Eng. B 192 (2015) 26-51.

- P72. Y.A. Genenko, J. Glaum, M.J. Hoffmann, and K. Albe. “Mechanisms of aging and fatigue in ferroelectrics”, Mater. Sci. Eng. B 192 (2015) 52-82.
- P73. Y.A. Genenko, H. Rauh, and S. Kurdi, “Finite-element simulations of hysteretic alternating current losses in a magnetically coated superconducting tubular wire subject to an oscillating transverse magnetic field”, J. Appl. Phys. 117 (2015) 243909 (1-6).
- P74. S. Zhukov, M. Acosta, Y.A. Genenko, and H. von Seggern. „Variation of polarization switching dynamics across the temperature and composition driven phase transitions in the lead-free $Ba(Zr_{0.2}Ti_{0.8})O_3-x(Ba_{0.7}Ca_{0.3})TiO_3$ ferroelectrics”, J. Appl. Phys. 118 (2015) 134104 (1-10).
- P75. T. Hang, J. Glaum, Y.A. Genenko, T. Phung and M. Hoffman. “Investigation of partial discharge in piezoelectric ceramics”, Acta Mater. 102 (2016) 284-291.
- P76. S. Zhukov, Y.A. Genenko, J. Koruza, J. Schultheiß, H. von Seggern, W. Sakamoto, H. Ichikawa, T. Murata, K. Hayashi, T. Yogo. “Effect of texturing on polarization switching dynamics in ferroelectric ceramics”, Appl. Phys. Lett. 108 (2016) 012907 (1-5).
- P77. J. Gassmann, S.V. Yampolskii, Y.A. Genenko, T. Reusch, A. Klein. “Functional Interfaces for Transparent Organic Electronic Devices: Consistent description of charge injection by combining in situ XPS and current voltage measurements with self-consistent modeling”, J. Phys. Chem. C 120 (2016) 10466-10475.
- P78. S. Zhukov, J. Glaum, H. Kungl, E. Sapper, R. Dittmer, Y.A. Genenko, and H. von Seggern. “Fatigue effect on polarization switching dynamics in polycrystalline bulk ferroelectrics”, J. Appl. Phys. 120 (2016) 064103 (1-14).
- P79. J. Pena Roche, Y.A. Genenko, A. Badia. “Magnetic invisibility of the magnetically coated type-II superconductor in partially penetrated state”, Appl. Phys. Lett. 109, (2016) 092601 (1-4).
- P80. A.N. Morozovska, E.A. Eliseev, Y.A. Genenko, I.S. Vorotiahin, M.V. Silibin, Y. Cao, Y. Kim, M.D. Glinchuk, and S.V. Kalinin. “Flexocoupling impact on the size effects of piezo-response and conductance in mixed-type ferroelectrics-semiconductors under applied pressure”, Phys. Rev. B 94 (2016) 174101 (1-10).
- P81. I.S. Vorotiahin, A.N. Morozovska, E.A. Eliseev, and Y.A. Genenko. “Flexocoupling impact on the kinetics of polarization reversal”, Phys. Rev. B 95 (2017) 014104 (1-9).
- P82. R. Khachatryan, S. Zhukov, J. Schultheiß, C. Galassi, C. Reimuth, J. Koruza, H. von Seggern, and Y.A. Genenko. „Polarization switching dynamics in ferroelectrics with oriented pores”, J. Phys. D: Appl. Phys. 50 (2017) 045303 (1-14).
- P83. T. Li, P. Sharma, A. Lipatov, H. Lee, J.-W. Lee, M.Y. Zhuravlev, T.R. Paudel, Y.A. Genenko, C.-B. Eom, E.Y. Tsymbal, A. Sinitskii, and A. Gruverman. Polarization-Mediated Modulation of Electronic and Transport Properties of Hybrid MoS_2 - $BaTiO_3$ - $SrRuO_3$ Tunnel Junctions, Nano Lett. 17 (2017) 922-927.
- P84. I.S. Vorotiahin, E.A. Eliseev, Q. Li, S.V. Kalinin, Y.A. Genenko, and A.N. Morozovska. “Tuning the Polar States of Ferroelectric Films via Surface Charges and Flexoelectricity”, Acta Mater. 137 (2017) 85-92.
- P85. S.T. Ranecky, H. Watanabe, J. Ogawa, T. Oka, and Y.A. Genenko. “Experimental and theoretical study of AC losses in variable asymmetrical magnetic environments”, Supercond. Sci. Technol. 30 (2017) 085005 (1-6).
- P86. R. Khachatryan, J. Wehner, and Y.A. Genenko. „Correlated polarization switching kinetics in bulk polycrystalline ferroelectrics: A self-consistent mesoscopic switching model”, Phys. Rev. B 96 (2017) 054113 (1-10).
- P87. E.A. Eliseev, I.S. Vorotiahin, Y.M. Fomichov, M.D. Glinchuk, S.V. Kalinin, Y.A. Genenko, and A.N. Morozovska. “Defect driven flexo-chemical coupling in thin ferroelectric films”, Phys. Rev. B 97 (2018) 024102 (1-17).
- P88. Y.A. Genenko, R. Khachatryan, J. Schultheiß, A. Ossipov, J.E. Daniels, and J. Koruza. „Stochastic multistep polarization switching in ferroelectrics”, Phys. Rev. B 97 (2018) 144101 (1-8).
- P89. R. Khachatryan and Y.A. Genenko. „Correlated polarization switching kinetics in bulk polycrystalline ferroelectrics. II. Impact of crystalline phase symmetries”, Phys. Rev. B 98 (2018) 134106 (1-14).

- P90. R. Khachatryan, J. Schultheiß, J. Koruza, and Y.A. Genenko. „Stochastic model of dispersive multi-step polarization switching in ferroelectrics due to spatial electric field distribution“, Appl. Phys. Lett. 114, (2019) 2229092 (1-5).
- P.91 I.S. Vorotiahin, A.N. Morozovska and Y.A. Genenko, “Hierarchy of domain reconstruction processes due to charged defect migration in acceptor doped ferroelectrics”, Acta Mater. 184 (2020) 267-283.
- P.92 Y. A. Genenko, R. Khachatryan, I. S. Vorotiahin, J. Schultheiß, J. E. Daniels, A. Grünebohm, and J. Koruza. "Multistep stochastic mechanism of polarization reversal in rhombohedral ferroelectrics", Phys. Rev. B 102 (2020) 064107 (1-12).
- P.93 E. A. Eliseev, M. D. Glinchuk, Y. A. Genenko, and A. N. Morozovska. "Phenomenological theory of defect driven flexochemical phenomena in ferroics", Ferroelectrics 569 (2020) 62-69.
- P.94 A. N. Morozovska, E. A. Eliseev, D. V. Karpinsky, M. V. Silibin, R. Vasudevan, S. V. Kalinin, and Y. A. Genenko. Mesoscopic theory of defect ordering–disordering transitions in thin oxide films, Sci. Reports (Nature Group) 10 (2020) 22377 (1-13).
- P.95 I. S. Vorotiahin, A. N. Morozovska, E. A. Eliseev, and Y. A. Genenko. "Control of Domain States in Rhombohedral Lead Zirconate Titanate Films via Misfit Strains and Surface Charges", Adv. Electron. Mater. (2021) 2100386 (1-20).
- P.96 Y. A. Genenko, M.-H. Zhang, I. S. Vorotiahin, R. Khachatryan, Y.-X. Liu, J.-W. Li, K. Wang, and J. Koruza. Multi-step stochastic mechanism of polarization reversal in orthorhombic ferroelectrics, accepted in Phys. Rev. B (2021).

Extended conference proceedings (in refereed journals)

- C1. L.V. Belevtsov, Y.A. Genenko, Y.M. Ivanchenko and Y.V. Medvedev, „*Internal vortex configuration in HTS materials*“. Fiz. Nizk. Temp. 17 (1991) 1239-1243 [Sov. Low Temp. Phys. 17 (1991) 655-656].
- C2. Y.A. Genenko and Y.V. Medvedev, „*2D-fluctuation mechanism of thermal conduction in strongly anisotropic high-Tc systems*“. Cryogenics 33 (1992) S375-S378.
- C3. Y.A. Genenko, „*Helical magnetic vortex in a type-II superconductor: an exact solution of an edge barrier problem*“. Physica C 235 (1994) 2709-2710.
- C4. Y.A. Genenko, V.N. Krivoruchko and Y.V. Medvedev; „*Peculiarities of dissipation properties of quasi-twodimensional superconductors in the range of intense order parameter phase fluctuations*“. Fiz. Nizk. Temp. 21 (1995) 456-458 [Low Temp. Phys. 21 (1995) 357-358].
- C5. Y.A. Genenko, G.G. Levchenko and V.N. Varyukhin, „*Influence of a magnetic field on the ac susceptibility of GdBa₂Cu₃O_{6+d} single crystals*“. Physica B 211 (1995) 257-259.
- C6. Y.A. Genenko, „*Nonstationary dissipative behaviour of current-carrying type-II superconductors in a longitudinal magnetic field*“. Fiz. Nizk. Temp. 22, (1996) 1272-1275 [Low Temp. Phys. 22 (1996) 967-969].
- C7. Y.A. Genenko and H.C. Freyhardt, „*Surface effect on the M-H diagram of the current-carrying superconductor in a parallel field*“. IOP Conf. Ser. No 167 (2000) 831-834.
- C8. Y.A. Genenko, A. Usoskin, A. Snezhko and H.C. Freyhardt „*A new type of superconductor/ferromagnet heterostructures for high-current applications*“. IOP Conf. Ser. No 167 (2000) 483-486.
- C9. Y.A. Genenko, A. Usoskin, A. Snezhko, and H.C. Freyhardt, „*Overcritical states in magnetically shielded superconductor strips*“, Physica C 341 (2000) 1063-1064.
- C10. Y.A. Genenko, H. Rauh and A. Snezhko, „*A novel magnet/superconductor heterostructure for high-field applications*“, Supercond. Sci. Technol. 14 (2001) 699-703.
- C11. Y.A. Genenko, „*Magnetic shielding for improvement of superconductor performance*“, phys. status solidi (a) 189 (2002) 469-473.
- C12. Y.A. Genenko, „*Critical current of a magnetically shielded Josephson junction*“, Physica C 372 (2002) 1847-1851.
- C13. Y.A. Genenko, H. Rauh and A. Snezhko, „*Novel design of a smart magnet/ superconductor heterostructure*“, Physica C 372 (2002) 1389-1393.

- C14. S.V. Yampolskii, Y.A. Genenko and H. Rauh, "Current distributions in a magnetically shielded superconducting filament", IOP Conf. Ser. No 181 (2004) 2335 - 2342.
- C15. Y.A. Genenko, A.V. Snezhko and A. Usoskin, "Possible implementation of thin-film magnetic shields for enhancement of the loss-free current in superconductor strips", IOP Conf. Ser. No 181 (2004) 2599 - 2605.
- C16. Y.A. Genenko, "Strong reduction of ac losses in a superconductor strip located between superconducting ground plates", Physica C 401 (2004) 210-213.
- C17. H. Rauh and Y.A. Genenko, "Bistable current-voltage characteristic of a weak link between superconducting grains", Physica C 401 (2004) 286-290.
- C18. Y.A. Genenko, A. Snezhko and A. Usoskin, "Finite magnetic shields effect on the transport current in superconductor strips", Physica C 401 (2004) 236-240.
- C19. Y.A. Genenko and H. Rauh, "Novel superconductor/magnet resonant configurations: Exact analytic representations of the Meissner state and the critical state", J. Phys.: Conf. Ser. 43 (2006) 568-571.
- C20. S.V. Yampolskii, Y.A. Genenko, H. Rauh, and A.V. Snezhko, "The Bean model of the critical state in a magnetically shielded superconducting filament", J. Phys.: Conf. Ser. 43 (2006) 576-580.
- C21. Y.M. Nikolaenko, Y.V. Medvedev, Y.A. Genenko, M. Ghafari and H. Hahn, "Interface thermal resistance of nanostructured FeCoCu film and Si substrate", phys. stat. sol. (c) 3 (2006) 1343-1346.
- C22. S.V. Yampolskii, Y.A. Genenko, and H. Rauh, "Penetration of an external magnetic field into a multistrip superconductor/soft-magnet heterostructure", Physica C 460 (2007) 1262-1263.
- C23. Y.A. Genenko and H. Rauh, "Superconductor strip in a closed magnetic environment: exact analytic representation of the critical state", Physica C 460 (2007) 1264-1265.
- C24. Y.A. Genenko, N. Balke and D.C. Lupascu, "Migration of charged defects in local depolarization fields as a mechanism of aging in ferroelectrics", Ferroelectrics 370 (2008) 196-202.
- C25. Y.A. Genenko, S.V. Yampolskii, C. Melzer, and H. von Seggern, "Self-consistent phenomenological theory of charge injection at the conductor/insulator interface", Integrated Ferroelectrics 106 (2009) 49-60.
- C26. C. Melzer, Y. A. Genenko, S. V. Yampolskii, K. Stegmaier, O. Ottinger, and H. von Seggern, "Charge carrier injection and transport in OLEDs: single-particle versus mean-field approach", J. Photonics for Energy, 1 (2011) 011014 (1-9).
- C27. H.S. Ruiz, A. Badia-Majos, Y.A. Genenko, and S.V. Yampolskii. "Strong localization of the density of power losses in type-II superconducting wires". IEEE Trans. Appl. Supercond. 23 (2013) 8000404 (1-4).