

Curriculum vitae

Alexandra M. Kalashnikova, PhD



1. Personal data

Kalashnikova, Alexandra Mikhailovna, PhD, born on 12.05.1980

Current status: Leading research fellow – head of laboratory

Work address: Ioffe Institute, Politekhneskaya 26,
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2. University education

09/1997– 01/2003: Laser Techniques and Technology, St. Petersburg State Institute for Precision Mechanics and Optics (TU), Engineer (cum laude).

3. Academic degrees

Promotion: PhD in Physics, Radboud University Nijmegen, 01.04.2009,
Promoters: Prof. Dr. Theo Rasing and Prof. Dr. Roman Pisarev.

4. Work experience

Since 07/2019 Head of the Ferroics Physics Laboratory at the Ioffe Institute, St. Petersburg, Russia.

04/2021-08/2022 Dean, Faculty of Nanoelectronics, ITMO University, St. Petersburg, Russia

Since 02/2018 Docent (part-time) at ITMO University, St. Petersburg, Russia.

Since 05/2010 Full-time scientific staff member (since 07/2019: leading research fellow), Ioffe Institute, St. Petersburg, Russia.

05/2009-04/2010 Post-doc, Spectroscopy of Solids and Interfaces, Institute for Molecules and Materials, Radboud University Nijmegen, Nijmegen, The Netherlands.

05/2005-04/2009 Junior Researcher (PhD student), Spectroscopy of Solids and Interfaces, Institute for Molecules and Materials, Radboud University Nijmegen, The Netherlands. Supervisor - Prof. Dr. Th. Rasing.

04/2002-04/2005 Laboratory assistant, Ioffe Institute, St. Petersburg, Russia

5. Scientific interests

Ultrafast laser-induced dynamics of electrons, spins and lattice; all-optical control of magnetization; optical and magneto-optical spectroscopy, second harmonics generation in ferroic media, ultrafast phase transitions; picosecond acoustics

6. Publications in peer-reviewed scientific journals

72 publications in total (Web of Science) with more than 2500 citations. Hirsh index 23.

Selected publications:

1. A. E. Fedianin, **A. M. Kalashnikova**, J. H. Mentink, *Selection rules for ultrafast laser excitation and detection of spin correlation dynamics in a cubic antiferromagnet*, Physical Review B **107**, 144430 (2023).
2. L. A. Shelukhin, R. R. Gareev, V. Zbarsky, J. Walowski, M. Münzenberg, N. A. Pertsev and **A. M. Kalashnikova**, *Spin reorientation transition in CoFeB/MgO/CoFeB tunnel junction*

enabled by ultrafast laser-induced suppression of perpendicular magnetic anisotropy, *Nanoscale* **14**, 8153 (2022).

2. A. V. Kimel, **A. M. Kalashnikova**, A. Pogrebna, A. K. Zvezdin, *Fundamentals and perspectives of ultrafast photoferroic recording*, *Physics Reports* **852**, 1 (2020)
3. Ia. A. Mogunov, S. Lysenko, A. E. Fedianin, F. E. Fernández, A. Rúa, A. J. Kent, A. V. Akimov, **A. M. Kalashnikova**, *Large non-thermal contribution to picosecond strain pulse generation using the photo-induced phase transition in VO₂*, *Nature Communications* **11**, 1690 (2020).
4. N.E. Khokhlov, P.I. Gerevenkov, L.A. Shelukhin, A.V. Azovtsev, N.A. Pertsev, M. Wang, A.W. Rushforth, A.V. Scherbakov, and **A. M. Kalashnikova**, *Optical Excitation of Propagating Magnetostatic Waves in an Epitaxial Gallenol Film by Ultrafast Magnetic Anisotropy Change*, *Physical Review Applied* **12**, 044044 (2019).
5. L. A. Shelukhin, V. V. Pavlov, P. A. Usachev, P. Yu. Shamray, R. V. Pisarev, **A. M. Kalashnikova**, *Ultrafast laser-induced changes of the magnetic anisotropy in a low-symmetry iron garnet film*, *Physical Review B* **97**, 014422 (2018).
7. J. A. de Jong, I. Razdolski, **A. M. Kalashnikova**, R. V. Pisarev, A. M. Balbashov, A. Kirilyuk, Th. Rasing, and A. V. Kimel, *Coherent Control of the Route of an Ultrafast Magnetic Phase Transition via Low-Amplitude Spin Precession*, *Physical Review Letters* **108**, 157601 (2012); Editor's suggestion; Viewpoint in Physics.
8. T. A. Ostler, J. Barker, R. F. L. Evans, R. W. Chantrell, U. Atxitia, O. Chubykalo-Fesenko, S. El Moussaoui, L. Le Guyader, E. Mengotti, L. J. Heyderman, F. Nolting, A. Tsukamoto, A. Itoh, D. Afanasiev, B. A. Ivanov, **A. M. Kalashnikova**, K. Vahaplar, J. Mentink, A. Kirilyuk, Th. Rasing & A.V. Kimel, *Ultrafast heating as a sufficient stimulus for magnetization reversal in a ferrimagnet*, *Nature Communications* **3**, 666 (2012).
9. K.Vahaplar, **A. M. Kalashnikova**, A. V. Kimel, D. Hinzke, U. Nowak, R. Chantrell, A. Tsukamoto, A. Itoh, A. Kirilyuk, Th. Rasing, *Ultrafast Path for Optical Magnetization Reversal via a Strongly Nonequilibrium State*, *Physical Review Letters* **103**, 117201 (2009); Editor's suggestion; Viewpoint in Physics.
10. **A. M. Kalashnikova**, A. V. Kimel, R. V. Pisarev, V. N. Gridnev, A. Kirilyuk, and Th. Rasing, *Impulsive Generation of Coherent Magnons by Linearly Polarized Light in the Easy-Plane Antiferromagnet FeBO₃*, *Physical Review Letters* **99**, 167205 (2007).

7. Other academic activities

2019-present: Secretary of the Dissertation board on condensed matter physics at Ioffe Institute.

2019-present: Member of the Scientific Council of the Ioffe Institute.

2017-2022: Member of the Coordination Council for young scientists of the Russian Presidential Council for Science and Education.

2018-2020: Member of the Russian Presidential Council for Science and Education.

2016-2018: Member of the Council for Science and Education affiliated with the Russian Ministry of Education and Science.

2016-present: Advisory Board member of the *Journal of Magnetism and Magnetic Materials*.

2014-present: Supervisor of 5 PhD students at the Ioffe Institute.

2009-present: Member of the program committees of several international conferences, including The International Symposium Spin Waves (2024, 2018, 2015, Russia) and Moscow International Symposium on Magnetism (2017, Russia). Organizer of International workshops on Novel Trends in Physics of Ferroics (2014, 2017 Russia). Vice-chair and Chair of Gordon Research Conference Spin dynamics in Nanostructures (2023, 2025, Switzerland).

8. Awards

2015: *President of Russia Award* in science and innovations for young scientists.

2014: *Leonard Euler Award* from the Government of St. Petersburg for outstanding achievement in science for young researchers.

2011: *Academician A. F. Ioffe award* from the Ioffe Institute (with V.V. Pavlov, D. R. Yakovlev, M. Bayer, and R. V. Pisarev).

2005, 2008, 2012, 2018: *Research Awards* of the Ioffe Institute.