

Curriculum Vitae



Name: Alexander Pavlovich Kamantsev

Birthday: 18-APR-1989

Acad. Degrees: Master of Applied Mathematics & Physics

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Education

1996-1999 Pupil in School No 6, Chelyabinsk, Russia.

1999-2006 Pupil in Physic & Mathematics Lyceum No 31, Chelyabinsk, Russia.

2006 Participant of Intel International Scientific & Engineering Fair (Intel ISEF-2006), Indianapolis, IN, USA.

2006 First prize in Fourteenth International Competition for High School (Lyceum) Students in Research Projects in Physics "FIRST STEP TO NOBEL PRIZE IN PHYSICS" (FS XIV), Warsaw, Poland.

http://www.ifpan.edu.pl/firststep/res_fsXIV.html

2006-2012 Student in Moscow Institute of Physics and Technology (MIPT State University). Department of Physical and Quantum Electronics. Specialty: "Applied Mathematics and Physics".

2010 The degree of Bachelor was awarded.

Bachelor's diploma-work: "Investigation of possibilities of application the magnetic materials with phase transitions for creation magnetic refrigerator or heat pump". Supervisor: Dr. V. V. Koledov, Kotelnikov IRE RAS.

2010-2012 Graduate student in Moscow Institute of Physics and Technology.

Master's program: "Solid State Electronics".

2012 The degree of "Master of Applied Mathematics & Physics" was awarded.

Master's diploma-work: "Thermodynamic and relaxation processes near phase transitions in advanced magnetocaloric materials". Supervisor: Dr. V. V. Koledov, Kotelnikov IRE RAS.

2012-present PhD student in Kotelnikov IRE RAS, Laboratory of Magnetic Phenomena in Microelectronics.

PhD's program: "Physics of Magnetic Phenomena". Adviser: Dr. V. V. Koledov.

2013 Participant of European School on Magnetism, Feb. 25th – Mar. 8th, 2013, Cargèse, France.

2013 Participant of IEEE Magnetics 2013 Summer School, June 9-14, 2013, Assisi, Italy.

2013 Has received Second Poster Award for the presentation: "Direct Research of Magnetocaloric Properties of Ni-Mn-In-Co Alloy in High Magnetic Fields" during the JEMS-2013 Joint European Magnetic Symposia held August 25-30, 2013, Rhodes, Greece.

Relevant work experience

2009-present Engineer in Kotelnikov IRE RAS.

2010-present Executant of different Russian and international research Grants of RFBR, CRDF, RScF in Laboratory of Magnetic Phenomena in Microelectronics (Kotelnikov IRE RAS).

2012-present Researcher (during one month in half of year) in International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland.

Research areas

- The experimental studies of rates of the magnetic, magnetostructural and metamagnetostructural phase transitions. The methods assume measurements of achievable working frequencies of devices based on materials with phase transitions. There are devices as a magnetocaloric refrigerator, actuators based on ferromagnetic shape memory effect and other, which have physical restrictions on working frequency.
- The experimental studies of magnetocaloric effect in prospective materials under adiabatic and quasi-isothermal conditions in high magnetic fields.
- The experimental studies of new ferromagnetic Heusler alloys with shape memory effect. Possibilities to control the giant strains in polycrystalline ferromagnetic Heusler functional alloys during structural magnetic-field-induced martensitic phase transitions.
- The experimental studies of electromagnetic waves, which were emitted from solid materials at structural phase transitions in the frequencies about 30 GHz. The possible mechanisms and theory of such effect were developed.

Main Publications on English

1. K.I. Kostromitin, V.D. Buchelnikov, V.V. Sokolovskiy, **A.P. Kamantsev**, V.V. Koledov, V.G. Shavrov and P. Entel. Theoretical study of magnetic properties and multiple twin boundary motion in Heusler Ni-Mn-Ga shape memory alloys using first principles and Monte Carlo method, *Materials Science Forum*, Vols. 738-739, pp. 461-467 (2013).
2. E. Kalimullina, **A. Kamantsev**, V. Koledov, V. Shavrov, V. Nizhankovskii, A. Irzhak, F. Albertini, S. Fabbri, P. Ranzieri and P. Ari-Gur. Magnetic shape memory microactuator. *Physica Status Solidi (C)*, Vol. 11, No. 5–6, pp. 1023–1025 (2014).
3. **Alexander P. Kamantsev**, Victor V. Koledov, Vladimir G. Shavrov, Irina S. Tereshina. Thermodynamic and Relaxation Processes near Curie Point in Gadolinium. *Solid State Phenomena*, Vol. 215, pp. 113-118 (2014).
4. **Alexander Kamantsev**, Victor Koledov, Elvina Dilmieva, Alexey Mashirov, Vladimir Shavrov, Jacek Cwik, Irina Tereshina, Vladimir Khovaylo, Maria Lyange, Lorena Gonzalez-Legarreta, Blanca Hernando and Pnina Ari-Gur. Thermomagnetic and magnetocaloric properties of metamagnetic Ni-Mn-In-Co Heusler alloy in magnetic fields up to 140 kOe. *EPJ Web of Conferences*, Vol. 75, 04008 (2014).
5. **A. P. Kamantsev**, V. V. Koledov, A. V. Mashirov, E. T. Dilmieva, V. G. Shavrov, J. Cwik, and I. S. Tereshina. Direct Measurement of Magnetocaloric Effect in Metamagnetic Ni₄₃Mn_{37.9}In_{12.1}Co₇ Heusler Alloy. *Bulletin of the Russian Academy of Sciences. Physics*, Vol. 78, No. 9, pp. 936–938 (2014)
6. **A. Kamantsev**, V. Koledov, A. Mashirov, E. Dilmieva, V. Shavrov, J. Cwik, I. Tereshina. Fundamental physical restrictions on power of magnetocaloric refrigeration based on gadolinium working body. 6th IIF-IIR International Conference on Magnetic Refrigeration (THERMAG VI), Victoria, Canada, September 4-10, 2014, pp. 89-90.
7. I. Bychkov, D. Kuzmin, D. Kalenov, **A. Kamantsev**, V. Koledov, D. Kuchin, V. Shavrov. Electromagnetic waves generation in Ni_{2.14}Mn_{0.81}GaFe_{0.05} Heusler alloy at structural phase transition. *Acta Physica Polonica A*, Vol. 127, No. 2, pp. 588–590 (2015).
8. L. González-Legarreta, M. Ipatov, D. González-Alonso, **A.P. Kamantsev**, V.V. Koledov, V.G. Shavrov, B. Hernando. Annealing influence on the exchange-bias and magnetostructural properties in the Ni_{50.0}Mn_{36.5}Sn_{13.5} ribbon-shape alloy. *Solid State Phenomena*, Vols. 233-234, pp. 179-182 (2015).

9. R. Fayzullin, V. Buchelnikov, M. Drobosyuk, A. Mashirov, **A. Kamantsev**, B. Hernando, M. Zhukov, V. Koledov and V. Shavrov. Direct and inverse magnetocaloric effect in Ni_{1.81}Mn_{1.64}In_{0.55} multifunctional Heusler alloy. *Solid State Phenomena*, Vols. 233-234, pp. 183-186 (2015).
10. **A. P. Kamantsev**, V. V. Koledov, A. V. Mashirov, E. T. Dilmieva, V. G. Shavrov, J. Cwik, I. S. Tereshina. Magnetocaloric effect of gadolinium at adiabatic and quasi-isothermal conditions in high magnetic fields. *Solid State Phenomena*, Vols. 233-234, pp. 216-219 (2015).
11. **A. P. Kamantsev**, V. V. Koledov, A. V. Mashirov, E. T. Dilmieva, V. G. Shavrov, J. Cwik, A. S. Los, V. I. Nizhankovskii, K. Rogacki, I. S. Tereshina, Yu. S. Koshkid'ko, M. V. Lyange, V. V. Khovaylo, and P. Ari-Gur. Magnetocaloric and thermomagnetic properties of Ni_{2.18}Mn_{0.82}Ga Heusler alloy in high magnetic fields up to 140 kOe. *Journal of Applied Physics*, Vol. 117, Issue 16, 163903 (2015).
12. **A. P. Kamantsev**, V. V. Koledov, A. V. Mashirov, E. T. Dilmieva, V. G. Shavrov, J. Cwik, I. S. Tereshina, M. V. Lyange, V. V. Khovaylo, J. Porcari, and M. Topic. Properties of metamagnetic alloy Fe₄₈Rh₅₂ in high magnetic fields. *Bulletin of the Russian Academy of Sciences. Physics*, Vol. 79, No. 9, pp. 1086–1088 (2015).
13. F. Guillou, H. Yibole, **A. Kamantsev**, G. Porcari, J. Cwik, V. Koledov, N.H. van Dijk and E. Brück. Field dependence of the magnetocaloric effect in MnFe(P,Si) materials. *IEEE Transactions on Magnetics*, Vol. 51, Issue 11, 2503904 (2015).
14. E. T. Dilmieva, **A. P. Kamantsev**, V. V. Koledov, A. V. Mashirov, V. G. Shavrov, J. Cwik, I. S. Tereshina. Experimental Simulation of a Magnetic Refrigeration Cycle in High Magnetic Fields. *Physics of the Solid State*, Vol. 58, No. 1, pp. 81–85 (2016).