

Curriculum Vitae

Professor Vladimir Grigorievich SHAVROV

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Place and date of birth: Tomsk, Russia , August, 5, 1932

Citizenship: Russian

Marital status: widower, two children

Spoken Languages: Russian and English

Education, degrees:

1992 Professor in Kotelnikov Institute of Radioengineering and Electronics of Russian Academy of Science (RAS), Moscow, Russia

1988 Doctor of Sciences (Physics and Mathematics) from Kurchatov Institute of Atomic Energy, Moscow, Russia

1965 Ph.D (Physics and Mathematics) from Perm State University, Perm, Russia

Professional Experience:

1996 – present Head of laboratory of Magnetic Phenomena in the Kotelnikov Institute of Radioengineering and Electronics of RAS, Moscow, Russia

1989 – 1996 Chief researcher, Kotelnikov Institute of Radioengineering and Electronics of RAS, Moscow, Russia

1968 – 1989 Senior staff researcher, Kotelnikov Institute of Radioengineering and Electronics of RAS, Moscow, Russia

1955 – 1968 Staff researcher in Institute of Metal Physics of Russian Academy of Science (RAS), Sverdlovsk, Russia.

Awards:

- 1) State Award of Ukraine for the cycle of works on magneto-acoustical effects, 1986.
- 2) State Research Grants 1994, 1997, 2000.
- 3) Medal “In Memory of 850th Anniversary of Moscow”, 1997.
- 4) Award MAIK-Nauka Publishing for the best work to the year, 1998.
- 5) Letter of Gratitude from the Presidium of Russian Academy of Sciences, 1999, № 10105250

Membership in professional societies:

- 1990 – Member of Scientific Council on Magnetism of Russian Academy of Science RAS
1999 – Member of Scientific Council on Acoustics of Russian Academy of Science RAS
2012 – Member of IEEE Magnetic Society

Research interests and main results:

The research interests of V.G. Shavrov are related with the theory of solid state, theory of magnetic phenomena, acoustics, magneto-acoustics, phase transition theory and applications.

Among the main results are the following:

- prediction of a number of galvano- and thermomagnetic effects due to the existence of antiferromagnetic ordering axis,
- development of the theory of magnetoelastic oscillations in magnets in the region of spin reorientation,
- prediction of new types of surface magnetoacoustic waves due to piezomagnetic effect,
- prediction of a new type of domain structure induced by sound waves (confirmed in experiment),
- development of a theory of mutual transformation of electromagnetic and ultrasound waves,
- prediction of colossal increase of magnetic permeability and corresponding decrease of electromagnetic wave propagation velocity in the region of spin reorientation,

- development of a theory of coupled phase transitions in magnets with structural instability,
- finding of the effect of drastic changes of Heusler alloy properties due to nanostructuring by severe plastic deformation.
- development of new aspects of magnetically controlled phase transitions important for functional materials useful in sensor and actuator applications for nano- and microelectromechanical systems

Supervised completed postgraduate theses – 12, consulting doctor of sciences dissertations – 9, all in Physics and mathematics, on problems of functional magnetic materials, phase transitions, magnetoacoustic effects.

Publications(physics and mathematics)

The general characterization of publication activity of V.G. Shavrov is illustrated by the following graphs of published items and citation report compiled from the ISI Web of Science database.

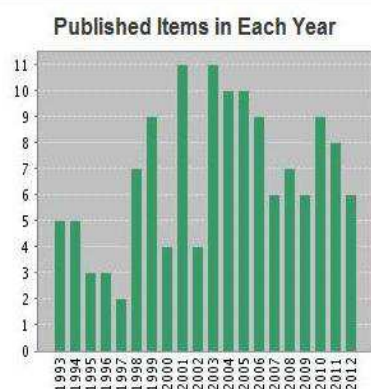
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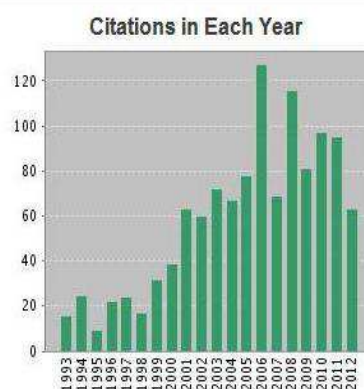
Citation Report Author=(Shavrov V*)

Timespan=All Years. Databases=SCI-EXPANDED, SSCI, A&HCI

This report reflects citations to source items indexed within Web of Science. Perform a Cited Reference Search to include citations to items not indexed within Web of Science.



The latest 20 years are displayed.
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The latest 20 years are displayed.
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Results found	: 208
Sum of the Times Cited [?]	: 1474
Sum of Times Cited without self-citations [?]	: 1155
Citing Articles[?]	: 1005
Citing Articles without self-citations [?]	: 875
Average Citations per Item [?]	: 7.09
h-index [?]	: 17

Listed below are reviews published in prestigious *Physics–Uspekhi** – English translation of Russian journal on advances in physical sciences. Journal 5-year impact-factor = 2.481.

Review papers and monograph

1. V.G. Shavrov (in Russian) Dynamical and Kinetic Properties of Magnetics. Moscow, Nauka, 1986.
2. E.A. Turov, V.G. Shavrov. Disturbed symmetry and magnetoacoustic effects in ferro and antiferromagnetics. Physics – Uspekhi* 140 (1983) pp.429-462.
3. A.S. Borovik-Romanov, E.G. Rudashevskii, E.A. Turov, V.G. Shavrov. Magnetoelastic effects of broken symmetry and soft modes near magnetic phase transitions. Physics – Uspekhi* 143 (1984) pp. 674-676.
4. V.D. Buchelnikov, V.G. Shavrov. Attenuation of magnetoelastic waves in magnetic in the region of reorientation phase transitions. Phys. Met. Metall. 68 (1989) pp. 421-444.
5. V.D. Buchelnikov, N.K. Danshin, L.T. Tsymbal, V.G. Shavrov. Magnetoacoustics of rare earth orthoferrites. Physics – Uspekhi* 166 (1996) pp. 585-612.
6. I.E. Dikshstein, Yu.V. Gulyaev, V.G. Shavrov. Surface magnetoacoustic waves in magnetic crystals in the vicinity of orientational phase transitions”. Physics – Uspekhi* 167 (1997) pp. 735-750.
7. V.D.Buchelnikov, N.K.Danshin, L.T.Tsymbal, V.G.Shavrov “Ration of contributions precessional and longitudinal oscillations in the dynamics of magnets. Physics – Uspekhi* 169 (1999) pp. 1049-1084.
8. V.D.Buchelnikov, A.N.Vasiliev, V.V.Koledov, S.V.Taskaev, V.V.Khovailo, V.G.Shavrov. Magnetic shape memory alloys – phase transitions and functional properties. Physics – Uspekhi* 49 (2006) p. 871-877.
9. Yu.V.Gulyaev, S.V.Tarasenko, V.G.Shavrov. Spin wave acoustics of antiferromagnetic structures as magnetoacoustic metamaterials. Physics – Uspekhi* 54 (2011) p. 573-604.

Selected recent publications in reviewed journals

1. K.Akatyeva, V.Afonina, F.Albertini, S. Von Gratoovski, A.Irzhak, S.Fabbrici, V.Khovaylo, V. Koledov, E.Krasnoperov, V.Shavrov. Shape memory effect in micro-sized samples of rapidly quenched ferromagnetic alloy Ni-Mn-Ga. *Solid State Phenomena*, Vol. 190, pp. 295-298 (2012).
2. J.J.Sunol, L.Escoda, B.Hernando, W.O.Rosa, T.Sanchez, J.D.Santos, V.M.Prida, V.G.Shavrov. Structure of rapidly quenched Ga-free Heusler alloys. *Phys. Status Solidi A* 208, № 10, 2281-2283 (2011).
3. A.M.Aliev, A.B.Batdalov, I.K.Kamilov, V.V.Koledov, V.G.Shavrov, V.D.Buchelnikov, J.Garcia, V.M.Prida, B.Hernando. Magnetocaloric effect in ribbon samples of Heusler alloys Ni-Mn-M (M=In,Sn). *Appl. Phys. Lett.* **97**, № 212505, p. 1-3 (2010).
4. Kourov, N.I., Pushin, V.G., Korolev, A.V., Koledov, V.V., Shavrov, V.G., Khovaylo, V.V., Knyazev, Yu.V., Popov, A.G. Effect of severe plastic deformation and ultrarapid quenching on the properties of magnetic shape memory alloys near the Ni₂MnGa composition. *Bulletin of the Russian Academy of Sciences: Physics* 73 (7), (2009) pp. 948-951.
5. V.V. Khovaylo, K.P. Skokov, Yu.S. Koshkid'ko, V.V. Koledov, V.G. Shavrov, V.D. Buchelnikov, S.V. Taskaev, H. Miki, T. Takagi, and A.N. Vasiliev "Adiabatic temperature change at first-order magnetic phase transitions: Ni_{2.19}Mn_{0.81}Ga as a case study" *Phys. Rev. B* 78 (2008) p.060403(R).
6. V.Khovaylo, V.Koledov, V.Shavrov, M.Ohtsuka, H.Miki, T.Takagi, V.Novosad. Influence of cobalt on phase transition in Ni₅₀Mn₃₇Sn₁₃. *Materials Science and Engineering A* 481-482, 322-325 (2008).
7. D.I.Zakharov, A.G.Kirilin, V.V.Koledov, G.A.Lebedev, E.P.Perov, V.G.Pushin, V.V.Khovaylo, V.G.Shavrov, A.V.Shelyakov. A composite functional material with shape memory effect exhibiting a giant reversible straining. *Functional Materials*, 15, № 3, 448-454 (2008).
8. V.D.Buchelnikov, S.V.Taskaev, M.A.Zagrebin, D.I.Ermakov, V.V.Koledov, V.G.Shavrov, T.Takagi. The phase diagrams of Ni-Mn-Ga alloys in the magnetic field. *JMMM* 313, 312-316 (2007).
9. I.D. Borisenko, V.V. Koledov, V.V. Khovaylo, V.G. Shavrov, "Martensitic and magnetic phase transitions in ternary ferromagnetic alloys Ni_xMn_yGa_{4-x-y}" *J. Magn. Magn. Mater.* **300** (2006) e486-e488.
10. V.V. Runov, Yu.P. Chernenkov, M.K. Runova, V.G. Gavrilyuk, N.I. Glavatska, A.G. Gukasov, V.V. Koledov, V.G. Shavrov, V.V. Khovaylo "Spin correlations and mesoscopic structure in Ni-Mn-Ga" *J. Exp. Theor. Phys.* **102** (2006) p. 102.
11. V.V. Khovaylo, V.D. Buchelnikov, R. Kainuma, V.V. Koledov, M. Ohtsuka, V.G. Shavrov, T. Takagi, T. Taskaev, and A.N. Vasiliev "Phase transitions in Ni_{2+x}Mn_{1-x}Ga with a high Ni excess" *Phys. Rev. B* **72** (2005) 224408.
12. I.A. Borisenko, R.M. Grechishkin, V.V. Koledov, E.P. Krasnoperov, Y. Li, V.V. Khovaylo, V.G. Shavrov, and C. Zhang "Structural, magnetic and thermomechanical properties of Ni-Mn-Fe-Ga Heusler alloys" *Physics – Doklady* **69**(4) (2005) p.570
13. O.M. Korpusov, R.M. Grechishkin, V.V. Koledov, V.V. Khovaylo, T. Takagi, and V.G. Shavrov, "Simultaneous magnetooptic observation and thermomagnetic analysis of

- phase transitions in shape-memory Ni–Mn–Ga alloys” *J. Magn. Magn. Mater.* **272-276** (2004) 2035
14. A. Aliev, A. Batdalov, S. Bosko, V. Buchelnikov, I. Dikshtein, V. Khovailo, V. Koledov, R. Levitin, V. Shavrov, and T. Takagi, “Magnetocaloric effect and magnetization in a Ni-Mn-Ga Heusler alloy in the vicinity of magnetostructural transition” *J. Magn. Magn. Mater.* **272-276** (2004) 2040
 15. R.M. Grechishkin, V.V. Koledov, V.G. Shavrov, I.E. Dikshtein, V.V. Khovailo, T. Takagi, V.D. Buchelnikov, and S.V. Taskaev, “Martensitic and magnetic domain structures in polycrystalline shape memory alloys $Ni_{2+x}Mn_{1-x}Ga$ ” *Int. J. Appl. Electromagn. Mech.* **19** (2004) 175
 16. V.V. Khovailo, T. Abe, V.V. Koledov, M. Matsumoto, H. Nakamura, R. Note, M. Ohtsuka, V.G. Shavrov, and T. Takagi, “Influence of Fe and Co on phase transitions in Ni-Mn-Ga alloys” *Mater. Trans.* **44** (2003) 2509
 17. D.A. Filippov, V.V. Khovailo, V.V. Koledov, E.P. Krasnoperov, R.Z. Levitin, V.G. Shavrov, and T. Takagi, “The magnetic field influence on magnetostructural phase transition in $Ni_{2.19}Mn_{0.81}Ga$ ” *J. Magn. Magn. Mater.* **258-259** (2003) 507
 18. V.V. Khovailo, T. Takagi, A.D. Bozhko, M. Matsumoto, J. Tani, and V.G. Shavrov, “Premartensitic transition in $Ni_{2+x}Mn_{1-x}Ga$ Heusler alloys” *J. Phys.: Condens. Matter* **13** (2001) 9655
 19. V.D. Buchel’nikov, A.T. Zayak, A.N. Vasil’ev, D.L. Dalidovich, V.G. Shavrov, T. Takagi, and V.V. Khovailo, “Phase Transition in Ferromagnetic $Ni_{2+x}Mn_{1-x}Ga$ Alloys with Regard for the Modulation Order Parameter” *J. Exp. Theor. Phys.* **92** (2001) 1010
 20. A.D. Bozhko, A.N. Vasil’ev, V.V. Khovailo, I.E. Dikshtein, V.V. Koledov, S.M. Seletskii, A.A. Tulaikova, A.A. Cherechukin, V.G. Shavrov, and V.D. Buchel’nikov, “Magnetic and structural phase transitions in the shape-memory ferromagnetic alloys $Ni_{2+x}Mn_{1-x}Ga$ ” *J. Exp. Theor. Phys.* **88** (1999) 954
 21. I.E. Dikshtein, V.V. Koledov, V.G. Shavrov, A.A. Tulaikova, A.A. Cherechukin, V.D. Buchel’nikov, V.V. Khovailo, M. Matsumoto, T. Takagi, and J. Tani, “Phase transitions in intermetallic compounds Ni-Mn-Ga with shape memory effect” *IEEE Trans. Magn.* **35** (1999) 3811
 22. A.N. Vasil’ev, A.D. Bozhko, V.V. Khovailo, I.E. Dikshtein, V.G. Shavrov, V.D. Buchelnikov, M. Matsumoto, S. Suzuki, T. Takagi, and J. Tani, “Structural and magnetic phase transitions in shape-memory alloys $Ni_{2+x}Mn_{1-x}Ga$ ” *Phys. Rev. B* **59** (1999) 1113.
 23. A. Vasil’ev, A. Bozhko, V. Khovailo, I. Dikshtein, V. Shavrov, S. Seletskii, and V. Buchelnikov, “Structural and magnetic phase transitions in shape memory alloys $Ni_{2+x}Mn_{1-x}Ga$ ” *J. Magn. Magn. Mater.* **196-197** (1999) 837.
 24. I.A. Kaybichev, V.G. Shavrov, “Transverse waves in inhomogeneous layer between two media” *J. of Acoustic* **45** (1999) pp. 81-85.
 25. A.D. Bozhko, A.N. Vasil’ev, V.V. Khovailo, V.D. Buchelnikov, I.E. Dikshtein, S.M. Seletskii, and V.G. Shavrov, “Phase transitions in the ferromagnetic alloys $Ni_{2+x}Mn_{1-x}Ga$ ” *J. Exp. Theor. Phys. Lett.* **67** (1998) 227.