

Open Doors: Russian Scholarship Project

First Name, Surname	Rodionova Valeria
Academic Degree/ Organization	PhD degree in Lomonosov Moscow State University (Russia); PhD degree homologation in University of Basque Country (Bilbao, Spain);
Research Interests	magnetism, magnetic materials, films and nanostructures, amorphous and soft magnetic materials, biphasic magnetic microwires, layered structures, domain wall dynamics, magnetic properties of wires, high-frequency properties of amorphous materials, giant magnetic impedance, Heusler alloys, exchange bias, uniaxial anisotropy, magnetic methods in biology, ecology and medicine, electromagnetic actuating.
Program distinctive features	Use of unique equipment, interaction with foreign scientists and research centers, financial support for a PhD student.
Research projects list (participation/management)	<ul style="list-style-type: none"> - Study of the micromagnetic structure and magnetic properties of amorphous ferromagnetic materials with cylindrical symmetry - Study of the magnetic, optical and magneto-optical effects of magnetoplasmonic crystals - Synthesis and study of hybrid nanoparticles made of noble and ferromagnetic materials for biomedical applications. - Fabrication and study of magnetic and transport properties of MAX-phases
Possible research topics	<ol style="list-style-type: none"> 1. Controlling the dynamics of the micromagnetic structure of amorphous ferromagnetic wires using current annealing 2. Enhancement of magneto-optical effects due to surface waves of electron density 3. Use of materials based on MAX-phases in industry 4. Optimization of the parameters of magnetic field sensor elements based on magnetoplasmonic crystals
Number of publications in journals indexed by Web of Science or Scopus in the last 5 years	80 (Scopus)
Main publications (no more than 5)	<p>1) Alexander Omelyanchik, Valentina Antipova, Christina Gritsenko, Valeria Kolesnikova, Dmitry Murzin, Yilin Han, Andrei V. Turutin, Ilya V. Kubasov, Alexander M. Kislyuk, Tatiana S. Ilina, Dmitry A. Kiselev, Marina I. Voronova, Mikhail D. Malinkovich, Yuriy N. Parkhomenko, Maxim Silibin, Elena N. Kozlova, Davide Peddis, Kateryna Levada, Liudmila Makarova, Abdulkarim Amirov, Valeria Rodionova, Boosting Magnetoelectric Effect in Polymer-Based Nanocomposites, <i>Nanomaterials</i> 11, 1154 (2021), https://doi.org/10.3390/nano11051154;</p> <p>2) Victor K. Belyaev, Valeria V. Rodionova, Andrey A. Grunin, Mitsuteru Inoue, Andrey A. Fedyanin, Magnetic field sensor based on magnetoplasmonic crystal, <i>Scientific Reports</i>, 10, 7133 (2020); https://doi.org/10.1038/s41598-020-63535-1</p>

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	<p>3) J. Alam, C. Bran, H. Chiriac, N. Lupu, T.A. Óvári, L.V. Panina, V. Rodionova, R. Varga, M. Vazquez, A. Zhukov, Cylindrical micro and nanowires: Fabrication, properties and applications, Journal of Magnetism and Magnetic Materials, Vol 513, 2020, 167074, ISSN 0304-8853, https://doi.org/10.1016/j.jmmm.2020.167074.</p> <p>4) Kirill Sobolev, Anna Pazniak, Oleg Shylenko, Vladimir Komanicky, Alessia Provino, Pietro Manfrinetti, Davide Peddis, Valeria Rodionova, Complex optimization of arc melting synthesis for bulk Cr₂AlC MAX-phase, Ceramics International, Volume 47, Issue 6, 2021, Pages 7745-7752, ISSN 0272-8842, https://doi.org/10.1016/j.ceramint.2020.11.119</p> <p>5) S. Pshenichnikov, A. Omelyanchik, M. Efremova, M. Lunova, N. Gazatova, V. Malashchenko, O. Khaziakhmatova, L. Litvinova, N. Perov, L. Panina, D. Peddis, O. Lunov, V. Rodionova, K. Levada, Control of oxidative stress in Jurkat cells as a model of leukemia treatment, Journal of Magnetism and Magnetic Materials, Volume 523, 2021, 167623, ISSN 0304-8853, https://doi.org/10.1016/j.jmmm.2020.167623</p>
The most significant results of intellectual activity	6 patents for inventions and utility models
Requirements for a PhD student (foreign language proficiency, professional skills)	Knowledge of English - upper-intermediate Knowledge of the theory of electromagnetism
The course for PhD student to apply	03.06.01 Physics and Astronomy Specialty (profile): Condensed matter physics