



Maxim Dvornikov

Date and place of birth

March 24, 1978

Moscow, Russia

Education

2001 – 2004 M.V. Lomonosov Moscow State University
[web page](#)

Moscow, Russia

Ph.D. in physics

- Supervisor: Prof. A.I. Studenikin, [Moscow State University](#).
- Research work at the post-graduate school of MSU dealt with the studying of
 - 1) neutrino electromagnetic properties,
 - 2) covariant description of neutrino spin oscillations in arbitrary external fields,
 - 3) neutrino spin-flavor oscillations in electromagnetic fields of various configurations.
- Title of the Ph.D. thesis: “A massive neutrino in the external fields”.
- Referees of the Ph.D. thesis:
 1. Prof. E.A. Kuraev, [Joint Institute for Nuclear Research](#).
 2. Prof. V.B. Semikoz, [IZMIRAN](#).
 3. Prof. V.N. Rodionov, [Plekhanov Russian University of Economics](#).
- Ph.D. thesis was defended in June of 2004 in MSU. The decision to award the Ph.D. degree was unanimously approved by all members of the dissertation committee.

1995 – 2001 M.V. Lomonosov Moscow State University
[web page](#)

Moscow, Russia

M.Sc. in physics

- Supervisor: Prof. A.I. Studenikin, [Moscow State University](#).
- Research work at Physics Faculty of MSU dealt with the studying of
 - 1) neutrino oscillations in matter and arbitrary electromagnetic fields.
- Title of the diploma work: “Neutrino spin oscillations in matter under the influence of electromagnetic fields”.
- The diploma was defended in January of 2001 in MSU.
- Graduated – “Diploma with honors”.

**Professional
experience**

2005 – present **Institute of Terrestrial Magnetism,
Ionosphere and Radiowave Propagation
(IZMIRAN)** [web page](#) **Moscow/Troitsk
Russia**

Leading research fellow

- Research work at the theoretical department at IZMIRAN deals with the studying of
 - 1) astroparticle physics and cosmology,
 - 2) neutrino astrophysics,
 - 3) atmospheric and solar plasma physics.

2014 – present **National Research Tomsk State University** **Tomsk, Russia**
[web page](#)

Senior research fellow (part-time position)

- Research work at the Laboratory of quantum theory of intense fields at TSU deals with the studying of
 - 1) quantum field theory,
 - 2) theoretical neutrino physics,
 - 3) astroparticle physics and cosmology.

2011 – 2015 **University of São Paulo** [web page](#) São Paulo, Brazil

Post-doctoral researcher

- Research work at the Institute of Physics at USP dealt with the studying of
 - 1) quantum field theory,
 - 2) neutrino physics and astrophysics,
 - 3) astroparticle physics and cosmology,
 - 4) physics of quantum plasmas.

2008 – 2011 **Technical University
Federico Santa Maria** [web page](#) **Valparaíso, Chile**

Post-doctoral researcher

- Research work at the Department of Physics at UTFSM dealt with the studying of
 - 1) neutrino astrophysics,
 - 2) atmospheric plasma physics.

2006 – 2008 **University of Jyväskylä** [web page](#) **Jyväskylä, Finland**

Post-doctoral researcher

- Research work at the Department of Physics at the University of Jyväskylä dealt with the studying of
 - 1) neutrino oscillations in matter and in magnetic fields of various configurations,
 - 2) theory of neutrino flavor and spin-flavor oscillations.

2004 – 2005

Rostock University [web page](#)

Rostock, Germany

Exchange researcher

Research work at the elementary particles physics group at Rostock University dealt with the studying of

- 1) neutrino spin-flavor oscillations in the external fields,
- 2) covariant description of neutrino flavor oscillations in vacuum,
- 3) neutrino propagation in plasma of the early Universe.

Refereeing of international journals

The Astrophysical Journal Letters [web page](#), Physical Review D [web page](#), The European Physical Journal A [web page](#), The European Physical Journal C [web page](#), International Journal of Modern Physics D [web page](#), Annalen der Physik [web page](#), JETP Letters [web page](#), Journal of Physics D: Applied Physics [web page](#), Astrophysics and Space Science [web page](#), Advances in Space Research [web page](#), Geophysical & Astrophysical Fluid Dynamics [web page](#), Advances in Physics: X [web page](#), Physica Scripta [web page](#), Chinese Physics C [web page](#), International Journal of Theoretical Physics [web page](#), Gravitation & Cosmology [web page](#), Magnetohydrodynamics [web page](#), Applied and Computational Mathematics: An International Journal [web page](#), Open Physics Journal [web page](#)

**Professional
experience:
Visitorships**

2019 **University of Hamburg** [web page](#) **Hamburg, Germany**
Visitor

Research work at the Astroparticle Physics Group, II Institute for Theoretical Physics, University of Hamburg, dealt with the studying of

- 1) neutrino astrophysics.

2017 **Swiss Federal Institute of Technology** **Lausanne, Switzerland**
Lausanne [web page](#)

Visitor

Research work at the High Energy Theory Group at EPFL dealt with the studying of

- 1) quantum field theory.

2017 **Irkutsk State University** [web page](#) **Irkutsk, Russia**

Visitor

Research work at the Physics Faculty at Irkutsk State University dealt with the studying of

- 2) astroparticle physics,
- 3) neutrino astrophysics.

2016 **University of Hamburg** [web page](#) **Hamburg, Germany**

Visitor

Research work at the Astroparticle Physics Group, II Institute for Theoretical Physics, University of Hamburg, dealt with the studying of

- 1) astroparticle physics,
- 2) quantum field theory.

2013 – 2014 **Australian National University** **Canberra, Australia**
[web page](#)

Visitor

Research work at the Research School of Physics & Engineering at ANU dealt with the studying of

- 1) nonlinear waves in classical and quantum plasmas,
- 2) astrophysical and cosmological plasmas,
- 3) neutrino astrophysics.

2010 **Max Planck Institute for Physics** **Munich, Germany**
(Werner Heisenberg Institute)
[web page](#)

Visitor

Research work at the astroparticle physics group at the Max Planck Institute for Physics dealt with the studying of

- 1) theory of neutrino spin-flavor oscillations,
- 2) neutrino astrophysics.

2006

Hiroshima University [web page](#)

Higashi-Hiroshima,
Japan

Visitor

Research work at the theoretical particle physics group at Hiroshima University dealt with the studying of

- 1) covariant description of neutrino flavor oscillations in matter,
- 2) neutrino oscillations in gravitational fields.

Teaching
experience

2016 **National Research Tomsk State University** **Tomsk, Russia**
[web page](#)

Invited lecturer

- Advanced lectures on “Neutrino oscillations in various external fields” for graduate students

2008 – 2010 **Technical University** **Valparaíso, Chile**
Federico Santa Maria [web page](#)

Lecturer (part-time position)

- Teaching in Spanish of the following physics courses for undergraduate students:
 - 1) classical mechanics,
 - 2) classical electrodynamics.

2005 – 2006 **Russian Technological University** **Moscow, Russia**
(MIREA) [web page](#)

Associate Professor (part-time position)

- Teaching (lectures and laboratory works) of general physics courses:
 - 1) classical mechanics,
 - 2) molecular physics and thermodynamics,
 - 3) classical electrodynamics,
 - 4) optics.

2005 – 2006 **Russian State Geological Prospecting** **Moscow, Russia**
University [web page](#)

Associate Professor (part-time position)

- Teaching (lectures and laboratory works) of general physics courses:
 - 1) classical mechanics,
 - 2) molecular physics and thermodynamics,
 - 3) classical electrodynamics,
 - 4) optics, atomic and nuclear physics.

2002 – 2004 **Russian Technological University** **Moscow, Russia**
(MIREA) [web page](#)

Assistant Professor (part-time position)

- Teaching (lectures and laboratory works) of general physics courses:
 - 1) classical mechanics,
 - 2) molecular physics and thermodynamics,
 - 3) classical electrodynamics,
 - 4) optics.

Participation
in
conferences

1. *5th Russian-Iberian Congress: Particle, Nuclear, Astroparticle Physics and Cosmology*, UCM, Madrid, Spain, 2019.
2. *Neutron Star Theory Workshop*, UCM, Madrid, Spain, 2019
3. *19th Lomonosov Conference on Elementary Particle Physics*, MSU, Moscow, Russia, 2019.
4. *18th Workshop on High Energy Spin Physics*, JINR, Dubna, Russia, 2019.
5. *4th International Conference on Particle Physics and Astrophysics*, MEPhI, Moscow, Russia, 2018.
6. *Quantum Anomalies and Chiral Magnetic Phenomena*, Nordita, Stockholm, Sweden, 2018.
7. *6th International Conference on Control and Optimization with Industrial Applications*, BSU, Baku, Azerbaijan, 2018.
8. *“Quarks-2018” 20th International Seminar on High Energy Physics*, INR, Valday, Russia, 2018.
9. *3rd International Conference on Particle Physics and Astrophysics*, MEPhI, Moscow, Russia, 2017.
10. *17th Workshop on High Energy Spin Physics*, JINR, Dubna, Russia, 2017.
11. *18th Lomonosov Conference on Elementary Particle Physics*, MSU, Moscow, Russia, 2017.
12. *Ginzburg Centennial Conference on Physics*, Lebedev Institute, Moscow, Russia, 2017.
13. *X International Conference “Modern Trends in Physics”*, BSU, Baku, Azerbaijan, 2017.
14. *52nd Rencontres de Moriond “Very High Energy Phenomena in the Universe”*, LPNHE, La Thuile, Italy, 2017.
15. *2nd International Conference on Particle Physics and Astrophysics*, MEPhI, Moscow, Russia, 2016.
16. *International Workshop on Strong Field Problems in Quantum Theory*, TSU, Tomsk, Russia, 2016.
17. *“Quarks-2016” 19th International Seminar on High Energy Physics*, INR, Pushkin, Russia, 2016.
18. *17th Lomonosov Conference on Elementary Particle Physics*, MSU, Moscow, Russia, 2015.
19. *International Conference on Massive Neutrinos*, Nanyang Technological University, Singapore, 2015.
20. *Saha Theory Workshop: Cosmology at the Interface*, SINP, Kolkata, India, 2015.
21. *10th Latin American Symposium on High Energy Physics*, University of Antioquia, Medellin, Colombia, 2014.
22. *37th International Conference on High Energy Physics*, University of Valencia, Valencia, Spain, 2014.
23. *41st EPS Conference on Plasma Physics*, MPI for Plasma Physics, Berlin, Germany, 2014.
24. *2nd International Conference on Flavor Physics and Mass Generation*, Nanyang Technological University, Singapore, 2014.
25. *6th International Workshop on Astronomy and Relativistic Astrophysics*, CBPF, Rio de Janeiro, Brazil, 2013.
26. *31st International Conference on Phenomena in Ionized Gases*, Institute of Astrophysics of Andalucía, Granada, Spain, 2013.
27. *10th International Conference on Electro-hydrodynamics of Conducting Liquids, Long-*

- lived Plasma Structures and Rare Forms of Natural Atmospheric Discharges in Atmosphere*, Yaroslavl University, Yaroslavl, Russia, 2013.
28. *9th Latin American Symposium on High Energy Physics*, SAIFR, São Paulo, Brazil, 2012.
 29. *“Quarks-2012” 17th International Seminar on High Energy Physics*, INR, Yaroslavl, Russia, 2012.
 30. *“Miami 2011” conference on elementary particles, astrophysics, and cosmology*, University of Miami, Fort Lauderdale, USA, 2011.
 31. *15th International School “Particles and Cosmology”*, INR, Troitsk, Russia, 2011.
 32. *“Miami 2010” conference on elementary particles, astrophysics, and cosmology*, University of Miami, Fort Lauderdale, USA, 2010.
 33. *7th Chilean Symposium on Physics*, Chilean Physics Society, Pucón, Chile, 2010.
 34. *2nd International Conference “Atmosphere, Ionosphere, Safety”*, Kant State University, Kaliningrad, Russia, 2010.
 35. *3rd International Workshop on High Energy Physics in the LHC Era*, UTFSM, Valparaíso, Chile, 2010.
 36. *14th Lomonosov Conference on Elementary Particle Physics*, MSU, Moscow, Russia, 2009.
 37. *7th Latin American Symposium on High Energy Physics*, Centro Atómico Bariloche, San Carlos de Bariloche, Argentina, 2009.
 38. *EPS High Energy Physics Conference*, University of Manchester, Manchester, England, 2007.
 39. *Workshop and conference on Cosmology, Strings and Phenomenology*, AlbaNova University Center, Stockholm, Sweden, 2007.
 40. *“Stone as a meeting point”*, DAAD, St-Petersburg, Russia, 2007.
 41. *14th International School “Particles and Cosmology”*, INR, Baksan Valley, Russia, 2007.
 42. *42nd Rencontres de Moriond “Electroweak interactions and Unified theories”*, University Paris-Sud, La Thuile, Italy, 2007.
 43. *IPM School & Conference on Lepton and Hadron Physics*, IPM, Tehran, Iran, 2006.
 44. *Hiroshima Higgs Workshop*, Hiroshima University, Higashi-Hiroshima, Japan, 2006.
 45. *“Physics of Fundamental Interactions” (Session of RAS Nuclear Physics Department)*, ITEP, Moscow, Russia, 2005.
 46. *12th Lomonosov Conference on Elementary Particle Physics*, MSU, Moscow, Russia, 2005.
 47. *10th Lomonosov Conference on Elementary Particle Physics*, MSU, Moscow, Russia, 2001.
 48. *9th Lomonosov Conference on Elementary Particle Physics*, MSU, Moscow, Russia, 1999.

**Participation
in summer
schools**

1. *Summer School on Particle Physics and Cosmology “The Fabric of Spacetime”*, University Joseph Fourier, *Les Houches, France*, 2006.
2. *Summer School on Astroparticle Physics and Cosmology*, ICTP, *Trieste, Italy*, 2006.
3. *43 Internationale Universitätswochen für Theoretische Physik*, University of Graz, *Schladming, Austria*, 2005.
4. *Summer School on CP Violation and Heavy Quarks*, University of Rostock, *Prerow, Germany*, 2003.
5. *13th Jyväskylä Summer School*, University of Jyväskylä, *Jyväskylä, Finland*, 2003.
6. *School on Neutrino Physics and Astrophysics*, ICTP, *Trieste, Italy*, 2002.
7. *Summer School on CP Violation, Baryogenesis and Neutrinos*, University of Rostock, *Prerow, Germany*, 2002.
8. *Summer School on Astroparticle Physics and Cosmology*, ICTP, *Trieste, Italy*, 2002.
9. *Summer School on Astroparticle Physics and Cosmology*, ICTP, *Trieste, Italy*, 2000.

Languages

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| Russian | English | Spanish | Portuguese | German |
| Mother tongue | Very good | Very good | Average | Fair |

Awards received

- 2006 – 2008 [Russian Science Support Foundation](#) grant for Ph.D. degree holders of Russian Academy of Sciences.
- 2004 – 2005 [German Academic Exchange Service](#) scholarship for young researchers.
- 2000 – 2001 Lomonosov scholarship for prominent students of Moscow State University.