

Olga ALEXANDROVA

Date of birth : 6 Jan. 1978
Family situation : Married
Nationality : Russian
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Scientific interests

Space plasma turbulence, solar wind, planetary magnetosheaths, collisionless shock waves.

Current position

Associate Astronomer at LESIA, Observatoire de Paris, Meudon, France, working on solar wind and planetary magnetosphere's turbulence.

Employment history

2009 –	Associate Astronomer at LESIA, Observatoire de Paris, Meudon, France
2007–2009	Research Fellow at University of Cologne, Germany
2005–2007	Research Fellow from CNES at LESIA, France
2002–2005	PhD scholarship at University Paris VI, France
2000–2002	Scholarship at École Polytechnique, France
1995–2000	Scholarship at St-Petersburg State University, Russia

PhD thesis

Prepared under the supervision of André Mangeney and Milan Maksimovic (LESIA, Observatoire de Paris, France), on the subject *MHD turbulence in Earth magnetosheath downstream of quasi-perpendicular bow-shock*, defended 30th November 2005, members of the committee : J.C. Cerisier, T. Passot, D. Burgess, M. Tagger, F. Mottez, A. Mangeney, M. Maksimovic.

Education

2002–2005	PhD thesis (with honors), University Paris VI, France
1999–2003	Master of Science (with honors), Speciality Geophysics, Faculty of Physics, St-Petersburg State University, Russia
2001–2002	Advanced Studies Diploma of Plasma Physics, École Polytechnique, France
2000–2001	International Program, École Polytechnique, France
1995–1999	Bachelor of Science (with honors), Faculty of Physics, St-Petersburg State University, Russia

Teaching experience

2004–2005	Course of mathematics in University of Technology, Velizy, France
2004–2006	Guide in the Observatory, Meudon, France
2006–2007	Master degree course <i>Space missions</i> , Paris Observatory, France
2007–2008	Responsibilities of Student Seminar, University of Cologne, Germany
2008–2009	Master degree course on <i>Wavelets</i> , University of Cologne, Germany
2009–2010	<i>Classical Mechanics</i> , University Paris 6, France

Publications and communications

- 14 articles in refereed journals
- 10 invited talks in international conferences
- 11 invited seminars
- More than 30 other communications

Scientific community services

- Referee for *Journal of Geophysical Research*
- Referee for *Astrophysical Journal*
- Referee for *Annales Geophysicae*
- Referee for *Nonlinear Processes in Geophysics*
- Referee for *CAA book (Proceedings of the 15th Cluster Workshop and the CAA School)*
- Referee for *Solar Wind 12 book (Proceedings of American Institute of Physics)*
- Organizer of International workshop in honor of Andre Mangeney *Space plasmas and Astrophysics*, Observatoire de Paris, Sept. 11–14 2007
- Organizer of the *Turbulence* session, 17th Cluster workshop in Uppsala 12–15 May 2009
- Organizer of the *10th Cluster Active Archive Cross-Calibration workshop*, Observatoire de Paris, Nov. 2–4 2009

Languages

Russian (native), English (fluent), French (fluent), German (intermediate level)

APPENDIX

Publications

Articles in refereed journals

- [1] L. Rezeau, F. Sahraoui, E. d'Humières, G. Belmont, T. Chust, N. Cornilleau-Wehrlin, L. Mellul, **O. Alexandrova**, E. Lucek, P. Robert, P. Decreau, P. Canu, I. Dandouras, *A case study of low-frequency waves at the magnetopause*, An. Geophys., 19 : 1463-1470, 2001
- [2] V. Semenov, **O. Alexandrova**, N. Erkaev, S. Muhlbachler, H. Biernat, *A simple model of magnetopause erosion as a consequence of pile-up process and bursty reconnection*, Int. J. Geomag. Aeronomy, vol. 3, no. 2, 109-116, 2002
- [3] **O. Alexandrova**, A. Mangeney, M. Maksimovic, C. Lacombe, N. Cornilleau-Wehrlin, E. Lucek, P. Decreau, J. M. Bosqued, P. Travnicek, A. N. Fazakerley, *Cluster observations of finite amplitude Alfvén waves and small scale magnetic filaments downstream of a quasi-perpendicular shock*, J. Geophys. Res., 109, A05207, 2004
- [4] **O. Alexandrova**, A. Mangeney, M. Maksimovic, N. Cornilleau-Wehrlin, J. M. Bosqued, M. Andre, *Alfvén vortex filaments observed by Cluster in the magnetosheath downstream of perpendicular shock*, J. Geophys. Res., Vol. 111, No. A12, A12208, 2006
- [5] E. M. Dubinin, M. Maksimovic, N. Cornilleau-Wehrlin, D. Fontaine, P. Travnicek, A. Mangeney, **O. Alexandrova**, K. Sauer, M. Fraenz, I. Dandouras, E. Lucek, A. Fazakerley, A. Balogh, and M. Andre, *Coherent Whistler Emissions in the Magnetosphere. Cluster Observations*, Annales Geophysicae, Vol. 25, pp 303-315, 2007
- [6] A. Samsonov, **O. Alexandrova**, C. Lacombe, M. Maksimovic, *Proton temperature anisotropy in the magnetosheath : comparison of MHD modeling with CLUSTER data*, Annales Geophysicae, 25, 1157, 2007
- [7] **O. Alexandrova**, V. Carbone, P. Veltri, L. Sorriso-Valvo, *Solar wind turbulent spectra and role of Hall effect. Cluster observations.*, Planetary and Space Science, Volume 55, Issue 15, p. 2224-2227, 2007
- [8] **O. Alexandrova**, V. Carbone, L. Sorriso-Valvo, P. Veltri, *Small Scale Energy Cascade of the Solar Wind Turbulence*, The Astrophysical Journal, Volume 674, Issue 2, pp. 1153-1157, 2008 (arXiv :0710.0763)
- [9] **O. Alexandrova**, *Solar wind versus magnetosheath turbulence and Alfvén vortices*, Nonlinear Processes in Geophysics, Volume 15, Issue 1, pp.95-108, 2008
- [10] **O. Alexandrova** and J. Saur, *Alfvén vortices in Saturn's magnetosheath : Cassini observations*, Geophysical Research Letters, Volume 35, Issue 15, CiteID L15102, 2008
- [11] **O. Alexandrova**, C. Lacombe, A. Mangeney, *Spectra and anisotropy of magnetic fluctuations in the Earth's magnetosheath : Cluster observations*, Annales Geophysicae, 26, 3585, 2008 (arXiv :0810.0675)
- [12] **O. Alexandrova**, J. Saur, C. Lacombe, A. Mangeney, J. Mitchell, S. J. Schwartz, P. Robert, *Universality of Solar-Wind Turbulent Spectrum from MHD to Electron Scales*, Physical Review Letters, vol. 103, Issue 16, id. 165003, 2009 (arXiv :0906.3236)
- [13] **O. Alexandrova**, J. Saur, C. Lacombe, A. Mangeney, J. Mitchell, S. J. Schwartz, R. Grappin, P. Robert, *Solar wind turbulent spectrum from MHD to electron scales*, Solar Wind 12, AIP, 2010 (arXiv :0912.2668)
- [14] K. Issautier, A. Mangeney and **O. Alexandrova**, *Spectrum of the electron density fluctuations : preliminary results from Ulysses observations*, Solar Wind 12, AIP, 2010

Submitted

- [15] G. Zimbardo, A. Greco, L. Sorriso-Valvo, S. Perri, Z. Vörös, G. Aburjania, Kh. Chargazia, **O. Alexandrova**, *Magnetic turbulence in the geospace environment*, submitted to Space Science Reviews, 2008

Other publications

- [16] **O. Alexandrova** and A. Mangeney, *Stationary field-aligned filament : model based on Cluster observations*, "Problems of Geocosmos-V", 132, 2004
- [17] **O. Alexandrova**, *Turbulence MHD dans la magnétogaine terrestre en aval des chocs quasi-perpendiculaires*, PhD thesis, Université Paris VI, 2005
- [18] **O. Alexandrova**, A. Mangeney and M. Maksimovic, *Incompressible magnetic vortices : magnetosheath Cluster observations*, "Problems of Geocosmos-VI", 3, 2006

Invited talks

- [1] **O. Alexandrova**, *Solar wind versus magnetosheath turbulence. Observations of Alfvén vortices*, The 6th International Workshop on Nonlinear Waves and Turbulence in Space Plasmas, Kyushu University, Japon, 9–13 Oct. 2006
- [2] V. Carbone, **O. Alexandrova**, S. Servidio, L. Sorriso, P. Veltri *Small-scale magnetic turbulence in the solar wind*, SH12A-01, AGU Fall Meeting, San Francisco, USA, 11–15 Dec. 2006
- [3] **O. Alexandrova**, *Multiscale phenomena of the Earth magnetosheath*, Workshop on Complexity in plasma and geospace systems, Geilo, Norway, March 4–9, 2007
- [4] **O. Alexandrova**, A. Mangeney, *Discovery of Alfvén vortices in the plasma turbulence of the Earth's magnetosheath*, AGU Joint Assembly, Acapulco, Mexico, 22–25 May 2007
- [5] **O. Alexandrova**, *Statistical properties of plasma turbulence in presence of Alfvén vortices*, Alfvén 2007 Workshop on Space Environment Turbulence, Warsaw, Poland, 17–21 Sept., 2007
- [6] **O. Alexandrova**, *Waves and turbulence downstream of quasi-perpendicular shock*, 15th Cluster Workshop & Cluster Active Archive School, Puerto Santiago, Tenerife, Canary Islands, Span, 9–15 March 2008
- [7] **O. Alexandrova**, *Observation of coherent magnetic vortices in planetary magnetosheath*, Workshop on Magnetosheath Processes, CESR, Toulouse, France, 8–10 Oct. 2008
- [8] **O. Alexandrova**, *Anisotropy and structures in space plasma turbulence*, Workshop on Structures and Waves in Anisotropic Turbulence, Warwick Mathematics Institute, UK, 3–7 Nov. 2008
- [9] **O. Alexandrova**, *Magnetosheath Turbulence*, AGU Fall Meeting, San Francisco, USA, Dec. 2008
- [10] **O. Alexandrova**, *Turbulence behind collisionless shocks and Alfvén vortices*, Workshop on Wave Turbulence, Institut Henri Poincaré, 6–10 April 2009

Seminars

- | | |
|---------------|---|
| [1] Dec 2002 | St-Petersburg State University, Russia. |
| [2] Feb 2003 | Seminars Fluides and plasmas of the Meudon Observatory, France. |
| [3] Apr 2004 | CESR, Toulouse, France. |
| [4] Dec 2005 | Dipartimento di Fisica de l'Universita della Calabria, Italy. |
| [5] May 2006 | CETP, Velizy, France. |
| [6] Nov 2006 | Seminars "Fluides and plasmas" of the Meudon Observatory, France. |
| [7] May 2007 | University de Cologne, Germany. |
| [8] Oct 2007 | Institute of Geophysics, Cologne, Germany. |
| [9] Mar 2008 | CESR, Toulouse, France. |
| [10] Jan 2009 | Imperial College, Londres, UK. |
| [11] Apr 2009 | St-Petersburg State University, Russia. |

Full list of communications (January 2010)

Talks

- [1] V. Semenov, **O. Alexandrova**, N. Erkaev, S. Muehlbachler, H. Biernat, *A Simple model of magnetopause erosion as a consequence of magnetic pile-up and bursty reconnection*, International Conference on Problems of Geocosmos III, St-Petersburg, Russia, 22–26 May 2000
- [2] **O. Alexandrova**, A. Mangeney, M. Maksimovic, *Instabilite de filamentation de l'onde d'Alfven pres du choc quasi-perpendiculaire*, Atelier de Travail : Aspects cinetiques du vent solaire, Saint Malo, France, 21–24 January 2003
- [3] **O. Alexandrova**, A. Mangeney, M. Maksimovic, C. Lacombe, N. Cornilleau-Wehrin, J.M. Bosqued, E. Lucek, *Cluster observations of Alfvén waves and small-scale current filaments in the downstream region of a perpendicular shock*, Book of Abstracts, p. 51, STAMMS, Orléans, France, 12–16 May 2003
- [4] **O. Alexandrova**, A. Mangeney, M. Maksimovic, N. Cornilleau-Wehrin, E. Lucek, J.M. Bosqued, *Structures in magnetostatic equilibrium observed by Cluster downstream of quasi-perpendicular shock*, Abstract EGU04-A-03954, 2004, EGU General Assembly, Nice, France, 25–30 April, 2004
- [5] **O. Alexandrova**, A. Mangeney, M. Maksimovic, *Structures in magnetostatic equilibrium observed by Cluster downstream of quasi-perpendicular shock*, Book of Abstracts, p. 71, International Conference on Problems of Geocosmos V, St-Pétersbourg, Russie, 24–28 May 2004
- [6] **O. Alexandrova**, *Cluster observations of magnetosheath adjacent to the bow-shock*, 6th European workshop on collisionless shocks, Paris, France, 4–6 November 2004
- [7] **O. Alexandrova**, A. Mangeney, M. Maksimovic, *Vortex like structures at the ion inertial scale downstream of quasi-perpendicular bow-shocks*, Abstract EGU05-A-08776, EGU General Assembly 2005, Vienna, Austria, 24–29 April 2005
- [8] **O. Alexandrova**, A. Mangeney, M. Maksimovic, *Cluster Observations of Alfvénic Vortices in the Magnetosheath*, Abstract SM52A-02, 2005, AGU Fall Meeting, San Francisco, USA, 5–9 December 2005
- [9] **O. Alexandrova**, A. Mangeney, M. Maksimovic, *Turbulent spectrum in magnetosheath and Alfvénic vortices*, Abstract EGU06-A-08991, EGU General Assembly 2006, Vienna, Austria, 2–7 April 2006
- [10] **O. Alexandrova**, V. Carbone, L. Sorriso-Valvo, S. Servidio, P. L. Veltri, *Evidence of the Hall effect on a turbulent spectrum in the fast solar wind. Cluster observations*, Dynamical Processes in Space Plasmas Israel, 7–15 May 2006
- [11] **O. Alexandrova**, A. Mangeney, M. Maksimovic, *Turbulent spectrum and intermittency in Earth magnetosheath*, Book of Abstracts, p. 166, International Conference on Problems of Geocosmos VI, St-Pétersbourg, Russie, 23–27 May 2006
- [12] **O. Alexandrova**, A. Mangeney, M. Maksimovic, *Magnetosheath turbulent spectrum and Alfvénic vortices*, 12th Cluster workshop Saariselka, Lapland, Finland, 13 Sept. 2006
- [13] **O. Alexandrova**, *Solar wind versus magnetosheath turbulence. Observations of Alfvén vortices*, The Sixth International Workshop on Nonlinear Waves and Turbulence in Space Plasmas Oct. 9–13, 2006, Kyushu University, Japan, **invited**
- [14] V. Carbone, **O. Alexandrova**, S. Servidio, L. Sorriso, P. Veltri *Small-scale magnetic turbulence in the solar wind*, SH12A-01, AGU Fall Meeting, San Francisco, USA, 11–15 Dec. 2006, **invited**
- [15] **O. Alexandrova**, *Multiscale phenomena of the Earth magnetosheath*, Workshop on Complexity in plasma and geospace systems, Geilo, Norway, mars 4–9, 2007, **invited**
- [16] **O. Alexandrova**, R. Grappin, A. Mangeney, *Stability of an Alfvén vortex : numerical evidence*, abstract EGU2007-A-09626, EGU General Assembly 2007
- [17] **O. Alexandrova**, A. Mangeney, *Discovery of Alfvén vortices in the plasma turbulence of the Earth's magnetosheath*, AGU Joint Assembly, Acapulco, Mexico, 22–25 May 2007, **invited**
- [18] **O. Alexandrova**, *Space plasma turbulence and Alfvén vortices*, Space Plasmas and Astrophysics International workshop in honor of André Mangeney, Observatoire de Meudon, 11–14 Sept. 2007
- [19] **O. Alexandrova**, A. Mangeney, *Space distribution of Alfvén vortices in the magnetosheath*, STAMMS-2-14th Cluster Double Star workshop, Orleans, France, 24–28 Sept. 2007

- [20] **O. Alexandrova**, *Waves and turbulence downstream of quasi-perpendicular shock*, 15th Cluster Workshop & Cluster Active Archive School, Puerto Santiago, Tenerife, Canary Islands, 9–15 March 2008, **invited**
- [21] **O. Alexandrova**, *Anisotropy of turbulent fluctuations in the Earth’s magnetosheath*, Workshop on Magnetosheath Processes, CESR, Toulouse, France, 8–10 Oct. 2008
- [22] **O. Alexandrova**, *Observation of coherent magnetic vortices in planetary magnetosheath*, Workshop on Magnetosheath Processes, CESR, Toulouse, France, 8–10 Oct. 2008, **invited**
- [23] **O. Alexandrova**, *Anisotropy and structures in space plasma turbulence*, Workshop on Structures and Waves in Anisotropic Turbulence, Warwick Mathematics Institute, UK, 3–7 Nov. 2008, **invited**
- [24] **O. Alexandrova**, *Anisotropy and Dissipation in Space Plasma Turbulence : Cluster Observations in the Solar Wind and Earth’s Magnetosheath*, AGU Fall Meeting, San Francisco, USA, 15–19 Dec. 2008
- [25] **O. Alexandrova**, *Magnetosheath Turbulence*, AGU Fall Meeting, San Francisco, USA, 15–19 Dec. 2008, **invited**
- [26] **O. Alexandrova**, *Turbulence behind collisionless shocks and Alfvén vortices*, Workshop on Wave Turbulence, Institut Henri Poincaré, 6–10 April 2009, **invited**
- [27] **O. Alexandrova**, J. Saur, C. Lacombe, A. Mangeney and P. Robert, *Solar wind turbulent spectrum from MHD to electron scales*, Solar Wind 12 conference, Saint Malo, France, 21–26 June 2009.

Posters

- [1] **O. Alexandrova**, A. Mangeney, M. Maksimovic, *Filamentation instability of post shock finite amplitude Alfvén waves*, Abstract EAE03-A-10880, 2003, EGS-AGU-EUG Joint Assembly, Nice, France, 6–11 April 2003
- [2] **O. Alexandrova**, P. Travnicek, A. Mangeney, *3D Hybrid simulations of finite amplitude Alfvén wave filamentation*, Eos Trans. AGU,84(46), Fall Meet. Suppl., Abstract SM52B-0582, 2003, AGU Fall Meeting, San Francisco, USA, 8–12 December 2003
- [3] A. Mangeney, **O. Alexandrova**, P. Travnicek, P. Hellinger, *Hybrid simulations of dispersive Alfvén wave and its filamentation*, Abstract EGU04-A-03709, 2004, EGU General Assembly, Nice, France, 25–30 April 2004
- [4] A. Mangeney, **O. Alexandrova**, M. Maksimovic, N. Cornilleau-Wehrin, E. Lucek, J.M. Bosqued, M. Andre, *Alfvén vortex filament-like structures observed by Cluster downstream of the bow-shock*, Eos Trans. AGU, 85(47), Fall Meet. Suppl., Abstract SM51C-0379, 2004, AGU Fall Meeting, San Francisco, USA, 13–17 December 2004
- [5] **O. Alexandrova**, A. Mangeney, R. Grappin, M. Maksimovic, N. Cornilleau-Wehrin, *Alfvén vortices : magnetosheath Cluster observations and weakly compressible MHD simulations*, AGU Fall Meeting, San Francisco, USA, 11–15 December 2006
- [6] **O. Alexandrova**, E. Budnik, V. Génot, C. Lacombe, C. Jacquy, I. Dandouras, E. Lucek, *Statistical study of magnetic field fluctuations in the Earth magnetosheath*, abstract EGU2007-A-10263, EGU General Assembly 2007
- [7] **O. Alexandrova**, C. Lacombe, A. Mangeney, E. Lucek, *CLUSTER observations in the magnetosheath : anisotropies of wave vector distributions of the turbulence at proton scales*, abstract EGU2007-A-03502, EGU General Assembly 2007
- [8] **O. Alexandrova**, C. Lacombe, A. Mangeney, N. Cornilleau-Wehrin, E. Lucek, *Spectral shape and anisotropy of solar wind magnetic fluctuations at electron scales* abstract EGU2008-A-08899, EGU General Assembly 2008
- [9] **O. Alexandrova** and J. Saur, *Turbulent spectrum downstream of the Saturn’s bow-shock : Cassini observations*, abstract EGU2008-A-08331, EGU General Assembly 2008
- [10] **O. Alexandrova**, C. Lacombe, J. Saur, A. Mangeney, and V. Carbone, *Space plasma turbulence at ion and electron scales : observations in the solar wind and Earth magnetosheath*, abstract EGU2009-8111, EGU General Assembly 2009

Summer schools

[1] **O. Alexandrova**, *Alfven wave instabilities : Cluster observations and hybrid simulations*, Summer school " Basic Processes of Turbulent plasmas ", Chalkidiki, Greece, 23–28 September 2003

[2] **O. Alexandrova**, *Stationary field-aligned filament : Cluster observations and model*, Summer school "Analysis techniques for turbulent plasmas", Calabria, Italy, 28 September – 2 October 2004

French national conferences

[1] **O. Alexandrova**, *Etude de la stabilite d'onde d'Alfven dispersive par les simulations numériques de type Hybride*, Atelier de Travail PNST, Autrans, France, 26-28 January 2004

[2] **O. Alexandrova**, *Structures en equilibre magnetostatique observees en aval du choc quasi-perpendiculaire*, Atelier de Travail PNST, Autrans, France, 26–28 January 2004

[3] **O. Alexandrova**, A. Mangeney, N. Cornilleau-Wehrin, J.M. Bosqued, P. Hellinger, *Alfvén wave instabilities : magnetosheath Cluster observations and hybrid simulations*, Book of Abstracts, p. 107, Semaine de l'Astrophysique Francaise (SF2A), Paris, France, 14–18 June 2004

[4] **O. Alexandrova-Boutillier**, *Découverte des vortex d'Alfven dans le plasma turbulent de la magnétogaine terrestre avec les mesures du multi-satellite CLUSTER*, Journées CNES Jeunes Chercheurs, Centre Spatial de Toulouse, France, 17–19 October 2006 (**outstanding presentation award**)

[5] **O. Alexandrova**, A. Mangeney, M. Maksimovic, N. Cornilleau-Wehrin, V. Carbone, P. Veltri, L. Sorriso, *Turbulence dans le vent solaire et dans la magnétogaine terrestre. Observation des vortex d'Alfvén*, Journée plasma à l'Université Pierre et Marie Curie (Turbulence dans les plasmas : aspects expérimentaux), 15 February 2007

[6] **O. Alexandrova**, V. Carbone, A. Mangeney, C. Lacombe, *Transfert et dissipation d'énergie turbulente dans le vent solaire*, Atelier PNST, Obernai, 25–28 March 2008

[7] **O. Alexandrova**, A. Mangeney and J. Saur, *Turbulence en aval de choc sans collisions*, Atelier PNST, Obernai, 25–28 March 2008

[8] **O. Alexandrova**, J. Saur, C. Lacombe, A. Mangeney, J. Mitchell, S. J. Schwartz, P. Robert, *Universality of solar wind turbulent spectrum from MHD to electron scales*, Atelier PNST, Ecole Polytechnique, Palaiseau, France, 28-30 September 2009