

## Olga ALEXANDROVA

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Born: January 6, 1978, St Petersburg  
 43 years old, married, 3 children  
 citizenship RU/FR

### Research Interests

Turbulence in astrophysical collisionless plasmas : in-situ measurements in the solar wind and planetary magnetospheres, theoretical and numerical modeling.

### Positions Held

2009–present	Associate Astronomer at Observatory of Paris, France.
2007–2009	Post-doc at University of Cologne, Germany.
2005–2007	Post-doc at CNES/LESIA, Observatory of Paris.
2005–2006	Post-doc at Università della Calabria, Italy.
2002–2005	Doctoral Fellow at UPMC/LESIA, Observatory of Paris, France.

### Education

2020	Habilitation (HDR) “Solar Wind Turbulence: <i>in-situ</i> observations from magneto-fluid to kinetic plasma scales”
2002–2005	Ph.D. in Plasma Physics (with Honors), UPMC, France, Thesis Advisers: A. Mangeney and M. Maksimovic, title: “Turbulence MHD dans la magnétogaine terrestre en aval des chocs quasi-perpendiculaires”
2001–2002	M.A. in <i>Plasma Physics</i> , École Polytechnique, France.
2000–2001	International Program, École Polytechnique, France.
1999–2003	M.A. in <i>Geophysics</i> (with Honors), St-Petersburg State University, Russie.
1995–1999	B.A. in <i>Physics</i> (with Honors), St-Petersburg State University, Russie.

### Language Knowledge

Russian (native), French (fluent), English (fluent), German (elementary)

### Community Service

#### National level

- 2010–2013: Deputy director of the *International Centre for Scientific Workshops* of Paris Observatory (CIAS), organisation of 15-17 workshops par year.
- 2013–present: Scientific director of the *International Centre for Scientific Workshops* of Paris Observatory (CIAS), 12-20 workshops par year.
- 2009–2016: Leader of the projet “*Turbulence et dissipation dans un plasma spatial*” at INSU.
- 2015–2019: Member of section CNAP; 2015–2018: scientific secretary of CNAP.

5. 2019–present: Member of scientific council of *Sun-Earth Relationship* national program at INSU.
6. 2021: Organizer of seminars in new scientific pole of LESIA *Heliosphere and Astrophysical Plasmas*.

### International level

1. Referee for *Astrophysical Journal*, *Astrophysical Journal Letters*, *Astrophysical Journal Supplement Series*, *Annales Geophysicae*, *Geophysical Research Letters*, *Journal of Geophysical Research*, *Journal of Physics A: Mathematical and Theoretical*, *MNRAS Letters*, *Nonlinear Processes in Geophysics*, *Philosophical Transactions of the Royal Society*, *Proceedings of the 12th Solar Wind conference*, *Proceedings of the 15th Cluster Workshop and the CAA School*.
2. P.I. of the project “*Study of the dissipation range of solar wind turbulence*” at ESA, The Cluster Guest Investigator Programme 2015.
3. Co.-P.I. of the instrument *STAFF/Cluster*.
4. Co.I. of the instrument *RPW/Solar Orbiter* (principal service task for CNAP since 2015).
5. Member of “*The Space Weather and Nonlinear Waves and Processes Prize*” committee of AGU, 2018.
6. Co-chair with Kris Klein of *Parker Solar Probe/Kinetic Scale Turbulence* Working Group, 2019.
7. Co-chair with Julia Stawarz of *Solar Orbiter/Turbulence and Waves* Working Group, 2020–2021.

### Organization of international conferences and workshops

1. International workshop in honor of Andre Mangeney “Space plasmas and Astrophysics”, Observatoire de Paris, Meudon, 11–14/09/2007 (member of SOC and LOC);
2. Session on “Turbulence”, 17th Cluster workshop, Uppsala, Sweden, 12–15/05/2009 (member of the SOC);
3. International workshop “Turbulent cascade in the solar wind: anisotropy and dissipation”, CIAS/Observatoire de Paris, Meudon, 17–21/09/2012, co-organised with Roland Grappin, Vincenzo Carbone et Luca Sorriso-Valvo (chair of the SOC and of the LOC) <https://lesia.obspm.fr/turbu/>;
4. “Solar Wind Turbulence” Meeting, Kennebunkport, Maine, USA, 4–7/06/2013 (member of the SOC);
5. “Préparation de AO ESA/M4”, CIAS/Observatoire de Paris, 24/06/2014 (Chair of the LOC);
6. “THOR (Turbulent Heating Observer) kick-off meeting”, CIAS/Observatoire de Paris, 9–10/10/2014 (chair of the LOC);
7. Session “Turbulence and Instabilities in Space Plasmas”, EGU General Assembly 2015 (member of the SOC) <http://meetingorganizer.copernicus.org/EGU2015/session/17659>;

8. Meudon Turbulent workshop 2015 “Energy Cascade and Dissipation in Astrophysical Turbulent Plasmas”, CIAS, Observatoire de Paris, 26–29 May 2015, co-organized with Arakel Petrosyan, Thierry Passot and Petr Hellinger (chair of the SOC and of the LOC) <https://turbu15.sciencesconf.org/>;
9. Session “Turbulence and Instabilities in Space Plasmas”, EGU General Assembly 2016 (member of the SOC) <http://meetingorganizer.copernicus.org/EGU2016/session/20709>;
10. “Helios mini-workshop”, Institute of Geophysics, University of Cologne, Germany, 27–29 juin 2016 (member of the SOC);
11. Session “Turbulence and Heating in Space Plasmas”, EGU General Assembly 2017 (member of the SOC) <http://meetingorganizer.copernicus.org/EGU2017/session/24850>.
12. Ecole de Physique des Houches, “From laboratories to astrophysics: the expanding universe of plasma physics”, 2-12 May 2017, Les Houches, France (member of the SOC and of the LOC) <http://ipag.osug.fr/~lesurg/plasmas2017/>;
13. Session ST1.4 “Turbulence and Heating in Space Plasmas”, EGU General Assembly 2018, Vienna (member of the SOC) <http://meetingorganizer.copernicus.org/EGU2018/session/27253>;
14. Workshop “Non-Thermal Distributions and Turbulence in the Expanding Solar Wind”, 14-18 Mai 2018, Observatoire de Meudon au CIAS (member of the SOC and of the LOC) <https://cias.obspm.fr/-Non-Thermal-Distributions-and-Turbulence-in-the-Expanding-Solar-Wind-lang=fr>;
15. “5TH Cluster-Themis Workshop”, Chania, Creta (Greece), 24-28 September 2018 (member of the SOC) [https://caa.esac.esa.int/wksp/cluster\\_workshop28\\_main.xml](https://caa.esac.esa.int/wksp/cluster_workshop28_main.xml);
16. Session ST1.5 “Turbulence in Space Plasmas”, EGU General Assembly 2019, Vienna (member of the SOC) <https://meetingorganizer.copernicus.org/EGU2019/session/31927>.
17. Session ST1.5 “Turbulence and waves in space plasmas”, EGU General Assembly, avril 2021 (chair of the SOC) [https://meetingorganizer.copernicus.org/EGU21/session/40158#vPIC0\\_presentations](https://meetingorganizer.copernicus.org/EGU21/session/40158#vPIC0_presentations)

## Teaching

### B.A. Level

2004–2005	Lectures and classes in Mathematics at IUT/University of Versailles Saint-Quentin-en-Yvelines.
2009–2013	Classical mechanics at UPMC, L1, classes and oral examinations.
2014–2015	Electromagnetism at UPMC, L2, classes and oral examinations.
2017–2018	Fundamentals for astronomy and astrophysics at Observatory of Paris, L3, France.

### M.A. Level

2008–2009	Student seminars, Institute of Geophysics, University of Cologne, Germany.
02/2011	Space missions, lecture, M1 A&A, Observatory of Paris, France.
2011–2020	Spectral analysis of in-situ magnetic field measurements, lecture and practical session, M2 PPF, Paris-Sud University, France.
2020–2021	MHD and space plasma, lectures, M1 A&A, Paris Observatory, France

**PHD Level (*Formation Doctorale*)**

2018–2019 *L'Héliosphère comme laboratoire pour les plasmas astrophysiques : analyse des mesures in situ des missions spatiales*, École Doctorale 127 (Astronomie et Astrophysique d'Île de France), co-organized with Lorenzo Matteini, Arnaud Zaslavsky and Milan Maksimovic

**Advanced courses on turbulence in space plasmas**

October 2014 *Space plasma turbulence from MHD to electron scales*, “Turboplasmas School”, Department of Physics & Astronomy, University of Florence, Arcetri, Italy.

April 2015 *Turbulent spectra in space plasmas*, Ecole de Physique des Houches “Turbulence, magnetic fields and self organization in laboratory and astrophysical plasmas”, 23 March–3 Avril 2015, Les Houches, France.

July 2016 *Solar wind turbulence*, Summer School “Advances in geophysical and astrophysical turbulence”, 26th July - 5 August 2016, Cargèse, France.

May 2017 *Solar wind turbulence*, Ecole de Physique des Houches, “From laboratories to astrophysics: the expanding universe of plasma physics”, 2–12 May 2017, Les Houches, France.

June 2018 *Turbulence in space plasmas*, GFZ German Research Centre for Geosciences, University of Potsdam, Germany.

**Scientific supervision****Bachelor/Licence**

1. Antonin Zabukovec, L3 internship, Université Paris 7 Diderot, May–July 2013 (50%, co-supervision with Milan Maksimovic)
2. Gaetan Gauthier, stage de L3, UPMC, May–July 2016

**Master-1**

1. Jordan Zafonte, M1 A&A, Observatoire de Paris, “Etude de la turbulence magnétique en aval du choc de la Terre”, 04–06/2014 (100%).
2. Guobao Tang, M1 Physique UPMC, “Plasma turbulence in the Earth’s magnetosheath with MMS data”, 01/04-15/09/2017 (50%, co-supervision with Lorenzo Matteini).
3. Fabien Lafargue, M1 A&A Observatoire de Paris, “Etude du plasma turbulent de la magnétogaine avec les données MMS”, 01/04–30/06/2018 (50%, co-supervision with Lorenzo Matteini).
4. Léonard Desvignes, Diplôme d’Ingénieur ECE Paris, 01/04–30/08/2018 (50%, co-supervision with Lorenzo Matteini).
5. Jessica Martin, M1 A&A Observatoire de Paris, “ SOLAR WIND TURBULENT SPECTRUM AT PLASMA KINETIC SCALES WITH PARKER SOLAR PROBE MEASUREMENTS ”, 08/04-09/07/2021 (100%).

**Master-2**

1. Claudia Rossi, Thesi di Laurea at Università della Calabria, Italy, “Small scale turbulence in the solar wind”, 04–10/2011 (80%), co-supervision with Vincenzo Carbone (20%).

2. Virgile Rakoto, M2 A&A Observatoire de Paris, “Etude des structures cohérentes dans les fluctuations compressibles du vent solaire turbulent avec les satellites Cluster”, 03–06/2013 (100%).
3. Sonny Lion, M2 A&A Observatoire de Paris, “Etude in-situ de la turbulence du vent solaire à l’aide des sondes STEREO”, 03–06/2013, co-supervision with Arnaud Zaslavsky (50%).
4. Inna Orel, M2 PPF, “Turbulence dans le plasma spatial aux échelles cinétiques”, 13/03–13/09/2017 (100%).

### PHD thesis

1. Michael von Papen, University of Cologne, 10/2011–10/2014 (20%), main supervisor Joachim Saur (80%).
2. Sonny Lion, UPMC/Observatoire de Paris, 10/2013 – 09/2016, *Analyse multi-satellite et multi-échelle de la turbulence dans le vent solaire*, (80%). Co-supervision with Arnaud Zaslavsky (20%) and Filippo Pantellini (HDR).
3. Vamsee Krishna Jagarlamudi, Université d’Orléans & Observatoire de Paris, 10/2016–09/2019, *Solar wind turbulence studies from 0.3 to 1 AU : HELIOS and WIND Observations* (30%). Co-supervision with Thierry Dudok de Wit et Milan Maksimovic.
4. Alexander Vinogradov, Thèse en cotutelle Sorbonne Université (SU) – IKI (Institut de Recherche Spatiale), Moscow 10/2020–09/2023, *Charged particle dynamics in solar wind coherent structures*.

### Post-docs

#### At Paris Observatory

1. 2013–2015: Denise Perrone (Paris Observatory fellowship).
2. 2016–2017: Andrea Verdini (Plas@Par/UPMC fellowship), collaboration LESIA–LPP (Roland Grappin).
3. 2017–2019: Denis Kuzzay (Plas@Par/UPMC fellowship).

#### Elsewhere

- 2015–2017: Denise Perrone (during her post-doc at ESA).
- 2015–2016: Hugo Breuillard (during his post-doc at University of Uppsala and at LPP).
- 2015–present: Owen Roberts (PHD at UK, post-doc at ESA, post-doc at Space Science Institute a Graz).
- 2018–2020: Teyan Wang (post-doc at RAL Space, UK).

### Popular Science

- Science festivals at UPMC.
- Conferences for college and high school students during their internship at Paris Observatory/LESIA to discover the world of scientific research.

## Publications

### Book chapters

1. G. Zimbardo, A. Greco, L. Sorriso-Valvo, S. Perri, Z. Vörös, G. Aburjania, Kh. Chargazia, **O. Alexandrova**, *Magnetic turbulence in the geospace environment*, Space Science Reviews, Volume 156, Issue 1-4, pp. 89-134, 10/2010
2. **O. Alexandrova**, C. Chen, L. Sorriso-Valvo, T. Horbury, S. Bale, *Solar wind turbulence and the role of ion instabilities*, Space Science Reviews, Springer, chapitre dans “Microphysics of plasmas” (édition *Springer*), Volume 178, Issue 2-4, pp. 101-139, 10/2013
3. T. Dudok de Wit, **O. Alexandrova**, I. Furno, L. Sorriso-Valvo, G. Zimbardo, *Methods for characterising microphysical processes in plasmas*, Space Science Reviews, chapitre dans “Microphysics of plasmas” (édition *Springer*), Volume 178, Issue 2-4, pp. 665-693, 10/2013
4. A.P. Rouillard, N. Viall, V. Pierrard, C. Vocks, L. Matteini, **O. Alexandrova**, A.K. Higginson, B. Lavraud, M. Lavarra, Y. Wu, R. Pinto, A. Bemporad, E. Sanchez-Diaz, “The Solar Wind”, AGU, accepted, 2020.

### Publications in refereed journals

5. L. Rezeau, F. Sahraoui, E. d’Humières, G. Belmont, T. Chust, N. Cornilleau-Wehrin, L. Mellul, **O. Alexandrova**, E. Lucek, P. Robert, P. Decreau, P. Canu, I. Dandouras, *A case study of low-frequency waves at the magnetopause*, Annales Geophysicae, 19, 1463, 2001
6. 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, 3, 109, 2002
7. **O. Alexandrova**, A. Mangeney, M. Maksimovic, C. Lacombe, N. Cornilleau-Wehrin, 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
8. **O. Alexandrova**, A. Mangeney, M. Maksimovic, N. Cornilleau-Wehrin, J. M. Bosqued, M. Andre, *Alfvén vortex filaments observed by Cluster in the magnetosheath downstream of perpendicular shock*, J. Geophys. Res., 111, A12208, 2006
9. E. M. Dubinin, M. Maksimovic, N. Cornilleau-Wehrin, 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, 25, 303, 2007
10. 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
11. **O. Alexandrova**, V. Carbone, P. Veltri, L. Sorriso-Valvo, *Solar wind turbulent spectra and role of Hall effect. Cluster observations.*, Planetary and Space Science, 55, 2224, 2007
12. **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, 1153, 2008 (arXiv:0710.0763)

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13. **O. Alexandrova**, *Solar wind versus magnetosheath turbulence and Alfvén vortices*, Non-linear Processes in Geophysics, Volume 15, Issue 1, 95, 2008
  14. **O. Alexandrova** and J. Saur, *Alfvén vortices in Saturn’s magnetosheath: Cassini observations*, Geophysical Research Letters, Volume 35, Issue 15, CiteID L15102, 2008
  15. **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)
  16. **O. Alexandrova**, J. Saur, C. Lacombe, A. Mangeney, Mitchell, J.; Schwartz, S. J.; Robert, P., *Universality of Solar-Wind Turbulent Spectrum from MHD to Electron Scales*, Physical Review Letters, vol. 103, Issue 16, id. 165003, 10/2009 (arXiv:0906.3236).
  17. Chen, C. H. K.; Horbury, T. S.; Schekochihin, A. A.; Wicks, R. T.; **Alexandrova, O.**; Mitchell, J., *Anisotropy of Solar Wind Turbulence between Ion and Electron Scales*, Physical Review Letters, vol. 104, Issue 25, id. 255002, 06/2010
  18. S. Bourouaine, **O. Alexandrova**, E. Marsch and M. Maksimovic, *On spectral breaks in the power spectra of magnetic fluctuations in fast solar wind between 0.3 and 0.9 AU*, The Astrophysical Journal, Volume 749, Issue 2, article id. 102, 2012
  19. **Alexandrova, O.**, C. Lacombe, A. Mangeney, R. Grappin and M. Maksimovic, *Solar wind turbulent spectrum at plasma kinetic scales*, The Astrophysical Journal, 760, 121, doi:10.1088/0004-637X/760/2/121, 2012
  20. **O. Alexandrova**, S. D. Bale, C. Lacombe, *Comment on “Evidence of a Cascade and Dissipation of Solar-Wind Turbulence at the Electron Gyroscale”*, Physical Review Letters, vol. 111, Issue 14, id. 149001, 10/2013
  21. M. von Papen, J. Saur, **O. Alexandrova**, *Turbulent magnetic field fluctuations in Saturn’s magnetosphere*, Journal of Geophysical Research: Space Physics, Volume 119, Issue 4, pages 2797-2818, April 2014
  22. C. Lacombe, **O. Alexandrova**, L. Matteini, A. Mangeney, N. Cornilleau-Wehrin, Y. de Conchy and M. Maksimovic, *Whistler mode waves and the electron heat flux in the solar wind: Cluster observations*, The Astrophysical Journal, Volume 796, Issue 1, article id. 5, 11 pp. (2014).
  23. D. Jovanovic, **O. Alexandrova**, M. Maksimovic, *Theory of coherent electron-scale magnetic structures in space plasma turbulence*, Phys. Scr. 90 (2015) 088002.
  24. O. W. Roberts, X. Li, **O. Alexandrova**, B. Li, *Observation of an MHD Alfvén vortex in the slow solar wind*, Journal of Geophysical Research: Space Physics, Volume 121, Issue 5, pp. 3870-3881 (05/2016), arXiv:1602.07410
  25. S. Lion, **O. Alexandrova** and A. Zaslavsky, *Coherent events and spectral shape at ion kinetic scales in the fast solar wind turbulence*, The Astrophysical Journal, Volume 824, Issue 1, article id. 47, 13 pp. (06/2016), arXiv:1602.07213.
  26. D. Perrone, **O. Alexandrova**, A. Mangeney, M. Maksimovic, C. Lacombe, V. Racoto, J. C. Kasper, D. Jovanovic, *Compressible coherent structures at ion scales in the slow solar wind*, The Astrophysical Journal, Volume 826, Issue 2, article id. 196, 19 pp. (08/2016), arXiv:1604.07577.
  27. H. Breuillard, E. Yordanova, A. Vaivads and **O. Alexandrova**, *The Effects of Kinetic Instabilities on Small-scale Turbulence in Earth’s Magnetosheath*, The Astrophysical Journal, Volume 829, Issue 1, article id. 54, 7 pp. (09/2016).

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28. P. Kajdic, **O. Alexandrova**, M. Maksimovic, C. Lacombe and A. N. Fazakerley, Suprathermal electron strahl widths in the presence of narrow-band whistler waves in the solar wind, *The Astrophysical Journal*, Volume 833, Issue 2, article id. 172, 11 pp. (12/2016), arXiv:1701.04819.
  29. L. Matteini, **O. Alexandrova**, C. H. K. Chen and C. Lacombe, Electric and magnetic spectra from MHD to electron scales in the magnetosheath, *Monthly Notices of the Royal Astronomical Society*, Volume 466, Issue 1, p.945-951, 04/2017
  30. C. Lacombe, **O. Alexandrova**, L. Matteini, Anisotropies of the Magnetic Field Fluctuations at Kinetic Scales in the Solar Wind: Cluster Observations, *The Astrophysical Journal*, Volume 848, Issue 1, article id. 45, 13 pp. (10/2017), arXiv:1710.02341.
  31. D. Perrone, **O. Alexandrova**, O. W. Roberts, S. Lion, C. Lacombe, A. Walsh, M. Maksimovic, I. Zouganelis, Coherent structures at ion scales in fast solar wind: Cluster observations, *The Astrophysical Journal*, in press (2017), arXiv:1709.09644.
  32. O. Roberts, **O. Alexandrova**, P. Kajdic, L. Turc, D. Perrone, P. Escoubet, A. Walsh, Variability Of The Magnetic Field Power Spectrum In The Solar Wind At Electron Scales, *The Astrophysical Journal*, Volume 850, Issue 2, article id. 120, 13 pp. (2017), arXiv:1710.05089 [physics.plasm-ph].
  33. A. Verdini, R. Grappin, **O. Alexandrova**, S. Lion, 3D Anisotropy of Solar Wind Turbulence, Tubes, or Ribbons? *The Astrophysical Journal*, Volume 853, Issue 1, article id. 85, 11 pp. (2018).
  34. Verdini, Andrea; Grappin, Roland; **Alexandrova, Olga**; Lion, Sonny Erratum: 3D Anisotropy of Solar Wind Turbulence, Tubes, or Ribbons?, *The Astrophysical Journal*, Volume 867, Issue 2, article id. 168, 2 pp. (11/2018).
  35. Jovanovic, Dusan; **Alexandrova, Olga**; Maksimovic, Milan; Belic, Milivoj, Reduced magneto-hydrodynamic theory of coherent magnetic chains in the solar wind, *Journal of Plasma Physics*, Volume 84, Issue 4, article id. 725840402, 13 pp., 08/2018.
  36. Wang, Tieyan; **Alexandrova, Olga**; Perrone, Denise; Dunlop, Malcolm; Dong, Xiangcheng; Bingham, Robert; Khotyaintsev, Yu. V.; Russell, C. T.; Giles, B. L.; Torbert, R. B.; Ergun, R. E.; Burch, J. L., Magnetospheric Multiscale Observation of Kinetic Signatures in the Alfvén Vortex, *The Astrophysical Journal Letters*, Volume 871, Issue 2, article id. L22, 12 pp. (02/2019).
  37. Kuzzay, Denis; **Alexandrova, Olga**; Matteini, Lorenzo, Local approach to the study of energy transfers in incompressible magnetohydrodynamic turbulence, *Physical Review E*, Volume 99, Issue 5, id.053202, May 2019
  38. Verdini, Andrea; Grappin, R.; **Alexandrova, O.**; Franci, L.; Landi, S.; Matteini, L.; Papini, E., Three-dimensional local anisotropy of velocity fluctuations in the solar wind, *Monthly Notices of the Royal Astronomical Society*, Volume 486, Issue 3, p.3006-3018, July 2019
  39. Jovanovic, Dusan; **Alexandrova, Olga**; Maksimovic, Milan; Belic, Milivoj, Fluid Theory of Coherent Magnetic Vortices in High- $\beta$  Space Plasmas, *The Astrophysical Journal*, Volume 896, Issue 1, id.8, June 2020
  40. Jagarlamudi, Vamsee Krishna; **Alexandrova, Olga**; Bercic, Laura; de Wit, Thierry Dudok; Krasnoselskikh, Vladimir; Maksimovic, Milan; Stverak, Stepan, Whistler Waves and Electron Properties in the Inner Heliosphere: Helios Observations, *The Astrophysical Journal*, Volume 897, Issue 2, id.118, July 2020



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41. Wang, Tieyan; He, Jiansen; **Alexandrova, Olga**; Dunlop, Malcolm; Perrone, Denise, Observational quantification of three-dimensional anisotropies and scalings of space plasma turbulence at kinetic scales, *The Astrophysical Journal*, Volume 898, Issue 1, id.91, July 2020
  42. Perrone, Denise; Bruno, Roberto; D'Amicis, Raffaella; Telloni, Daniele; De Marco, Rossana; Stangalini, Marco; Perri, Silvia; Pezzi, Oreste; **Alexandrova, Olga**; Bale, Stuart D., Coherent Events at Ion Scales in the Inner Heliosphere: Parker Solar Probe Observations during the First Encounter, *The Astrophysical Journal*, Volume 905, Issue 2, id.142, 12 pp., December 2020
  43. Matteini, L.; Franci, L.; **Alexandrova, O.**; Lacombe, C.; Landi, S.; Hellinger, P.; Papini, E.; Verdini, A., Magnetic field turbulence in the solar wind at sub-ion scales: in situ observations and numerical simulations, *Frontiers in Astronomy and Space Sciences*, Volume 7, id.83, December 2020
  44. **Alexandrova, Olga**; Krishna Jagarlamudi, Vamsee; Hellinger, Petr; Maksimovic, Milan; Shprits, Yuri; Mangeney, André, Spectrum of kinetic plasma turbulence at 0.3 – 0.9 astronomical units from the Sun, *Physical Review E*, Volume 103, Issue 6, article id.063202, 06/2021.

### In arXiv only

45. **Alexandrova, O.**, Lacombe, C., Mangeney, A., Grappin, R., Fluid-like dissipation of magnetic turbulence at electron scales in the solar wind, eprint arXiv:1111.5649, Nov. 2011
46. **Alexandrova, Olga**; Krishna Jagarlamudi, Vamsee; Rossi, Claudia; Maksimovic, Milan; Hellinger, Petr; Shprits, Yuri; Mangeney, André, Kinetic turbulence in space plasmas observed in the near-Earth and near-Sun solar wind, eprint arXiv:2004.01102, April 2020

### Large Collaborations

47. M. Berthomier, A. N. Fazakerley, C. Forsyth, R. Pottellette, **Alexandrova, O.**, A. Anastasiadis, A. Aruliah, P.-L. Blelly, C. Briand, R. Bruno, P. Canu, B. Cecconi, T. Chust, I. Daglis, J. Davies, M. Dunlop, D. Fontaine, V. Génot, B. Gustavsson, G. Haerendel, M. Hamrin, M. Hapgood, S. Hess, D. Kataria, K. Kauristie, S. Kemble, Y. Khotyaintsev, H. Koskinen, L. Lamy, B. Lanchester, P. Louarn, E. Lucek, R. Lundin, M. Maksimovic, J. Manninen, A. Marchaudon, O. Marghitsu, G. Marklund, S. Milan, J. Moen, F. Mottez, H. Nilsson, N. Ostgaard, C. J. Owen, M. Parrot, A. Pedersen, C. Perry, J.-L. Pinçon, F. Pitout, T. Pulkkinen, I. J. Rae, L. Rezeau, A. Roux, I. Sandahl, I. Sandberg, E. Turunen, J. Vogt, A. Walsh, C. E. J. Watt, J. A. Wild, M. Yamauchi, P. Zarka, and I. Zouganelis. Alfvén: magnetospher-ionosphere connection explorers. *Experimental Astronomy*, 33:445–489, April 2012.
48. Vaivads, A.; Retino, A.; Soucek, J.; Khotyaintsev, Yu. V.; Valentini, F.; Escoubet, C. P.; **O. Alexandrova**, André, M.; Bale, S. D.; Balikhin, M.; Burgess, D.; Camporeale, E.; Caprioli, D.; Chen, C. H. K.; Clacey, E.; Cully, C. M.; de Keyser, J.; Eastwood, J. P.; Fazakerley, A. N.; Eriksson, S.; Goldstein, M. L.; Graham, D. B.; Haaland, S.; Hoshino, M.; Ji, H.; Karimabadi, H.; Kucharek, H.; Lavraud, B.; Marcucci, F.; Matthaeus, W. H.; Moore, T. E.; Nakamura, R.; Narita, Y.; Nemecek, Z.; Norgren, C.; Opgenoorth, H.; Palmroth, M.; Perrone, D.; Pincon, J.-L.; Rathsmann, P.; Rothkaehl, H.; Sahraoui, F.; Servidio, S.; Sorriso-Valvo, L.; Vainio, R.; Voros, Z.; Wimmer-Schweingruber, R. F., Turbulence Heating

ObserveR - satellite mission proposal, Journal of Plasma Physics, Volume 82, Issue 5, article id. 905820501, 16 pp., (10/2016).

49. I. Zouganelis, and 183 co-authors, The Solar Orbiter Science Act Astronomy & Astrophysics, Volume 642, id.A3, 19 pp., October 2020
50. Maksimovic M. et al., The Solar Orbiter Radio and Plasma Waves (RPW) instrument, Astronomy & Astrophysics, Volume 642, id.A12, 23 pp., October 2020
51. Verscharen, Daniel; Wicks, Robert T.; **Alexandrova, Olga**; Bruno, Roberto; Burgess, David; Chen, Christopher H. K.; D'Amicis, Raffaella; De Keyser, Johan; Dudok de Wit, Thierry; Franci, Luca; He, Jiansen; Henri, Pierre; Kasahara, Satoshi; Khotyaintsev, Yuri; Klein, Kristopher G.; Lavraud, Benoit; Maruca, Bennett A.; Maksimovic, Milan; Plaschke, Ferdinand; Poedts, Stefaan Reynolds, Chirstopher S.; Roberts, Owen; Sahraoui, Fouad; Saito, Shinji; Salem, Chadi S.; Saur, Joachim; Servidio, Sergio; Stawarz, Julia E.; Stverak, Stepan; Told, Daniel, A Case for Electron-Astrophysics, Experimental Astronomy, 06/2021, <https://doi.org/10.1007/s10686-021-09761-5>

### White papers submitted to ESA and NASA

52. Plasma 2020 Decadal. Multipoint Measurements of the Solar Wind: A Proposed Advance for Studying Magnetized Turbulence , Klein, K. G.; **Alexandrova, O.**; Bookbinder, J.; Caprioli, D.; Case, A. W.; Chandran, B. D. G.; Chen, L. J.; Horbury, T.; Jian, L.; Kasper, J. C.; Le Contel, O.; Maruca, B. A.; Matthaeus, W.; Retino, A.; Roberts, O.; Schekochihin, A.; Skoug, R.; Smith, C.; Steinberg, J.; Spence, H. Vasquez, B.; TenBarge, J. M.; Verscharen, D.; Whittlesey, P., eprint arXiv:1903.05740, March 2019
53. Plasma 2020 Decadal. Disentangling the Spatiotemporal Structure of Turbulence Using Multi-Spacecraft Data, TenBarge, J. M.; **Alexandrova, O.**; Boldyrev, S.; Califano, F.; Cerri, S. S.; Chen, C. H. K.; Howes, G. G.; Horbury, T.; Isenberg, P. A.; Ji, H.; Klein, K. G.; Krafft, C.; Kunz, M.; Loureiro, N. F.; Mallet, A.; Maruca, B. A.; Matthaeus, W. H.; Meyrand, R.; Quataert, E.; Perez, J. C. Roberts, O. W.; Sahraoui, F.; Salem, C. S.; Schekochihin, A. A.; Spence, H.; Squire, J.; Told, D.; Verscharen, D.; Wicks, R. T., eprint arXiv:1903.05710, March 2019

### Refereed proceedings

54. **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, TWELFTH INTERNATIONAL SOLAR WIND CONFERENCE. AIP Conference Proceedings, Volume 1216, pp. 144-147, 2010 (arXiv:0912.2668)
55. Issautier, K.; Mangeney, A.; **Alexandrova, O.**, Spectrum of the electron density fluctuations: preliminary results from Ulysses observations, TWELFTH INTERNATIONAL SOLAR WIND CONFERENCE. AIP Conference Proceedings, Volume 1216, pp. 148-151, 2010

### Non-refereed proceedings

56. **O. Alexandrova** and A. Mangeney, *Stationary field-aligned filament: model based on Cluster observations*, proceedings of "Problems of Geocosmos-V", 132-135, 2004
57. **O. Alexandrova**, A. Mangeney and M. Maksimovic, *Incompressible magnetic vortices: magnetosheath Cluster observations*, proceedings of "Problems of Geocosmos-VI", 3-6, 2006

### **Space missions proposals (ESA, NASA)**

1. TOR, 2013, Call for a Small-size mission opportunity in ESA's Science Programme (S1).
2. THOR, 2015, Call for a Medium-size mission opportunity in ESA's Science Programme for a launch in 2025 (M4).
3. Uranus Pathfinder, 2015, Call for a Medium-size mission opportunity in ESA's Science Programme for a launch in 2025 (M4).
4. Alfvén, 2015, Call for a Medium-size mission opportunity in ESA's Science Programme for a launch in 2025 (M4).
5. PROSPERO, 2018, Call for a Fast (F) mission opportunity in ESA's Science Programme for a launch in the 2026-2028 timeframe.
6. Debye, 2018, Call for a Fast (F) mission opportunity in ESA's Science Programme for a launch in the 2026-2028 timeframe.
7. HelioSwarm, 2019, Call for Medium-Class Explorers (MIDEX) Missions in NASA's Science Programme.

## Invited talks

1. **O. Alexandrova**, *Solar wind versus magnetosheath turbulence. Observations of Alfvén vortices*, The Sixth 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 déc. 2006
3. **O. Alexandrova**, *Multiscale phenomena of the Earth magnetosheath*, Workshop on Complexity in plasma and geospace systems, Geilo, Norway, mars 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 mai 2007
5. **O. Alexandrova**, *Statistical properties of plasma turbulence in presence of Alfvén vortices*, Alfvén 2007 Workshop on Space Environment Turbulence 17–21 sep. 2007, Warsaw, Poland
6. **O. Alexandrova**, 15th Cluster Workshop & Cluster Active Archive School, Puerto Santiago, Tenerife, Canary Islands, 9 – 15 mars 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 avril 2009
11. **O. Alexandrova**, *Observations of solar wind turbulence at plasma kinetic scales*, Workshop "Vlasov-Maxwell kinetics: theory, simulations and observations in space plasmas", Wolfgang Pauli Institute (WPI) Vienna, 28 mars -01 avril 2011
12. **O. Alexandrova**, *Solar wind turbulent spectrum from MHD to electron scales*, WISAP 2011, Eilat, 19–24 June, 2011
13. **O. Alexandrova**, C. Lacombe, A. Mangeney, R. Grappin, *Solar Wind Turbulence at Plasma Kinetic Scales and its Dissipation Law*, ESLAB 2011/Cluster 21, Brugge, Belgium, 19 – 23 septembre 2011
14. **O. Alexandrova**, *Magnetic fluctuations spectrum at kinetic scales in the solar wind*, Arcetri 2011 Workshop on Plasma Astrophysics, 17–21 octobre 2011.
15. **O. Alexandrova**, *Turbulence in solar system plasmas: dissipation range*, WORKSHOP on Microphysics of Cosmic Plasmas, ISSI, Bern, 16–20 April 2012.
16. **O. Alexandrova**, *A general law describing solar wind turbulent spectrum at electron scales*, Arcetri 2012 Workshop on Plasma Astrophysics, November 5–8, 2012.
17. **O. Alexandrova**, *Solar wind turbulence at kinetic scales and parallel whistler waves*, Arcetri 2014 Workshop on Plasma Astrophysics, October 27–29, 2014.

18. **O. Alexandrova**, Turbulent spectra in space plasmas, Ecole de Physique des Houches, 23 March–3 Avril 2015, Les Houches, France
19. **O. Alexandrova**, Turbulence dans les plasmas héliosphériques, SF2A Session plénière S00, Toulouse, France, 2–5 juin 2015.
20. **O. Alexandrova**, workshop on "TURBULENCE AND DISSIPATION IN COLLISION-LESS ASTROPHYSICAL PLASMAS", Institut des Etudes Scientifique of Cargese, Corsica, France, September 20th-26th, 2015.
21. **O. Alexandrova**, Solar wind turbulence, Summer school "Magnetic Fields in the Universe: from Laboratory and Stars to the primordial Structures", Institut d'Etudes Scientifiques de Cargèse, Corsica, France, October 5-9, 2015.
22. **O. Alexandrova**, 25th Cluster workshop, Venice, Italy, 12–16 October 2015.
23. **O. Alexandrova**, Solar wind turbulence: coherent structures or waves?, Summer School "ADVANCES IN GEOPHYSICAL AND ASTROPHYSICAL TURBULENCE", Institut des Etudes Scientifique of Cargese, Corsica, France, 26th July–5 August 2016.
24. **O. Alexandrova**, S. Lion, D. Perrone, L. Matteini, C. Lacombe, M. Maksimovic, A. Zaslavsky, Space plasma turbulence: focus on kinetic scales, THOR Workshop #2: Exploring plasma energization in space turbulence, University of Barcelona, 27-29 September 2016.
25. **O. Alexandrova**, Solar wind turbulence: from radial evolution at large scales to nature of small scales fluctuations, Arcetri 2016 Workshop on Plasma Astrophysics, October 17–19, 2016.
26. **O. Alexandrova**, Solar wind and space plasma turbulence, Ecole de Physique des Houches, "From laboratories to astrophysics: the expanding universe of plasma physics", 2-12 May 2017, Les Houches, France.
27. **O. Alexandrova**, C. Lacombe, L. Matteini, D. Perrone, M. Maksimovic, Study of the dissipation range of solar wind turbulence, Cluster 27th workshop, Bled, Slovenia, 11-15 September 2017.
28. **O. Alexandrova**, Solar wind turbulence at kinetic scales, Arcetri 2017 Workshop on Plasma Astrophysics, October 23–27, 2017.
29. **O. Alexandrova**, Review on Solar wind turbulence, conference on Cosmic turbulence and magnetic fields: physics of baryonic matter across time and scales, the Institut d'études scientifiques de Cargèse, Corsica, France, 4–9 November, 2019.

## Invited seminars

1. April 2004 : CESR, Toulouse, France.
2. Dec 2005 : University of Calabria, Italy.
3. May 2006 : CETP, Velizy, France.
4. May 2007 : Institute of Geophysics, University of Cologne, Germany.
5. March 2008 : CESR, Toulouse, France.
6. Jan 2009 : Imperial College, London, UK.

7. April 2009 : Institute of Physics, State University of St-Petersburg, Russia.
8. Dec 2009 : CETP, Velizy, France.
9. Oct 2014 : Institut fur Weltraumforschung der Osterreichischen Akademie der Wissenschaften, Graz, Austria.
10. Nov 2014 : Rencontres Mécanique des Fluides, Observatoire de la Côte d'Azur, Nice, France.
11. Jan 2016 : Institute of Geophysics, University of Cologne, Germany.
12. July 2016 : Institute of Physics, State University of St-Petersburg, Russia.
13. June 2018 : GFZ German Research Centre for Geosciences University of Potsdam, Allemagne.
14. Decembre 2020 : Heliophysics Seminar, Princeton University
15. July 2021 : JPP Frontiers of Plasma Physics Colloquium
16. Fall 2021 : Astrophysics, geophysics and plasma physics seminar, Universita della Calabria