

Olga ALEXANDROVA

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

Research Interests

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

Positions Held

2021–	Astronomer (Professor) at Observatory of Paris, France.
2009–2021	Associate Astronomer (Assistant Professor) at Observatory of Paris.
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 & Diploma

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, Russia.
1995–1999	B.A. in <i>Physics</i> (with Honors), St-Petersburg State University, Russia.

Language Knowledge

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

Community Service

at Paris Observatory

1. 2010–2013: Deputy director of the *International Centre for Scientific Workshops* of Paris Observatory (CIAS), organisation of 15-17 workshops par year.
2. 2013–2021: Scientific director of the *International Centre for Scientific Workshops* of Paris Observatory (CIAS), 12-20 workshops par year.
3. 2021–2023: Membre of the group APCR (Accompagnement à la Préparation aux Concours de Recrutement).

4. 2022–2023: Creation and Scientific director of the Conference Centre Jules Janssen, Observatoire de Paris.
5. 2023–present: Deputy director of the Conference Centre Jules Janssen, Observatoire de Paris.
6. 2021–2022: Organizer of *Heliosphere and Astrophysical Plasmas* seminars at LESIA.
7. 2021–present: HDR Comity of Paris Observatory
8. 2022–present: PHD Comity of 3 students in Paris Observatory

National level

1. 2009–2016: Leader of the projet “*Turbulence et dissipation dans un plasma spatial*” at INSU.
2. 2015–2019: Member of section CNAP; 2015–2018: scientific secretary of CNAP.
3. 2019–2024: Member of scientific council of *National Sun-Earth Program*, INSU.
4. 2023–present: Member of CNU, Section 34 – Astronomie et Astrophysique.

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, Univers, Frontiers*; *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.I. of the instrument *STAFF/Cluster*.
4. Co.I. of the instrument SORBET/PWI/MMO/BepiColombo (service task for CNAP 2009–2015).
5. Co.I. of the instrument *RPW/Solar Orbiter* (principal service task for CNAP since 2015).
6. Member of “*The Space Weather and Nonlinear Waves and Processes Prize*” committee of AGU, 2018.
7. Evaluation of proposals: Referee for Czech Public tender in research in 2021; for Science and Technology Facilities Council (STFC) in UK in 2022; and for Swiss National Science Foundation in 2024.
8. Co-chair with Kris Klein of *Parker Solar Probe/Kinetic Scale Turbulence* Working Group, 2019.
9. Co-chair with Julia Stawarz of *Solar Orbiter/Turbulence and Waves* Working Group, 2020–2021.
10. Co-chair with Lorenzo Matteini and Julia Stawarz of *Solar Orbiter In-Situ Working Groupe Kinetic Physics, Turbulence, Waves, and Reconnection*, 2021–2022.

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).
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 ST4.2/NP6.8 “Turbulence and Instabilities in Space Plasmas”, EGU General Assembly 2015 (member of the SOC).
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).
9. Session ST1.4 “Turbulence and Instabilities in Space Plasmas”, EGU General Assembly 2016 (member of the SOC).
10. “Helios mini-workshop”, Institute of Geophysics, University of Cologne, Germany, 27–29 juin 2016 (member of the SOC);
11. Session ST1.8 “Turbulence and Heating in Space Plasmas”, EGU General Assembly 2017 (member of the SOC) .
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).
13. Session ST1.4 “Turbulence and Heating in Space Plasmas”, EGU General Assembly 2018, Vienna (member of the SOC).
14. Workshop Non-thermal distributions and turbulence in the expanding solar wind, 14-18 Mai 2018, CIAS/Observatoire de Meudon (member of the SOC and of the LOC).
15. 5TH Cluster-Themis Workshop, Chania, Creta (Greece), 24-28 September 2018 (member of the SOC).
16. Session ST1.5 “Turbulence in Space Plasmas”, EGU General Assembly 2019, Vienna (member of the SOC).
17. Session ST1.5 “Turbulence and waves in space plasmas”, EGU General Assembly, avril 2021 (chair of the SOC).
18. Session ST1.9 Turbulence in space plasmas: from injection to dissipation, EGU General Assembly 2022, Vienna, Austria & Online, 23–27 May 2022 (chair of the SOC).

19. Session ST1.11 Turbulence in space plasmas: from injection to dissipation, Vienna, Austria, 23–28 April & Online 2023 (chair of the SOC).
20. The 49th European Conference on Plasma Physics (EPS 2023) 3-7 July 2023, Bordeaux, France, member of the SOC in Basic, Space & Astrophysical Plasmas Committee.
21. Cosmic turbulence and magnetic fields: physics of baryonic matter (MIST2023), 25-29 Septembre 2023, Institut d'Etudes Scientifiques, Cargèse, member of the SOC
22. Session ST1.9 Turbulence in space plasmas: from injection to dissipation, EGU General Assembly 2024, Vienna, Austria & Online, 14–19 April 2024 (chair of the SOC).
23. Day in memory of Catherine Lacombe, 9 Septembre 2024, Centre de Conference Jules Janssen, Observatoire de Paris, Meudon (chair of the SOC and of the LOC).
24. SoWhat (SOlar Wind Heating, Acceleration & Transport) meeting 2024, 10–13 September 2024, Centre de Conference Jules Janssen, Observatoire de Paris, Meudon (chair of the SOC and of the LOC).
25. Session ST1.11 Turbulence in space plasmas, EGU General Assembly 2025, 27 April – 2 May 2025, Vienna, Austria & Online (chair of the SOC).
26. Cosmic turbulence and magnetic fields: physics of baryonic matter across time and scales (MIST2025), 29 Septembre – 3 October 2025, Institut d'Etudes Scientifiques, Cargèse (Chaired by E. Falgarone, member of the SOC).

Organization of national conferences and workshops

As a member of the PNST consul (2019-2024) I was involved in organisation of two PNST meetings and various SF2A sessions related to astrophysical plasmas, Solar-Terrestrial and space science. In particular, I've co-organised sessions and workshops, which put together different astrophysical communities in France.

1. Colloque PNST 2022, 16–20 May 2022 à Marseille (Chaired by G. Aulanier and P.-L. Blelly)
2. Colloque PNST 2024, 8–12 January 2024 à Marseille (Chaired by G. Aulanier and B. Lavraud)
3. Session S8 PNST Le Soleil et l'Héliosphère, 10 Juin, Journées SF2A on-line, 7–11 June 2021 (co-chaired with E. Buchlin)
4. Session S20 Cosmic turbulence, 8 & 9 June, La semaine de la SF2A, 7–10 June 2022 à Besancon (co-chaired with E. Falgarone)
5. Session S16 Ondes de choc en Astrophysique, 5 June, Journées SF2A 2024, 4–7 June 2024, Marseille (co-organised with M. Lemoine, I. Plotnikov).
6. Workshop Kinetic Physics of Astrophysical Plasmas, campus Pierre et Marie Curie de Sorbonne Université, 18–20 June 2025 (Chaired by M. Lemoine, APC).

Teaching

Bachelor 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.

Master Level

03/2007	Space missions, Observatory of Paris, France.
2008–2009	Student seminars, Institute of Geophysics, University of Cologne, Germany.
02/2011	Space missions, lecture, M1 A&A, Observatory of Paris, France.
2011–2025	Spectral analysis of in-situ magnetic field measurements, lecture and practical session, M2 PPF, Paris-Sud University, France.
2020–2025	MHD and space plasma, lectures, Master in Space Science and Technology: first year (M1), Paris Observatory, France
2021–2024	Participation in Master <i>Class Gas dynamics</i> , lecture, practice, M2 IRT, Paris Observatory/PSL.
2021–2025	Participation in Master Class <i>Data Analysis</i> , lectures, practice, Master in Space Science and Technology: second year (M2), International Research Track (IRT), Paris Observatory/PSL.

PHD Level (*Formation Doctorale*)

2018–2019	<i>L'Héliosphere comme laboratoire pour les plasmas astrophysiques : analyse des mesures in situ des missions spatiales</i> , Ecole Doctorale 127 (Astronomie et Astrophysique d'Île de France), co-organized with Lorenzo Matteini, Arnaud Zaslavsky and Milan Maksimovic
2022–2023	<i>L'Héliosphere comme laboratoire pour les plasmas astrophysiques</i> , ED 127, co-organized with Léa Griton, Arnaud Zaslavsky and Milan Maksimovic
2024–2025	<i>L'Héliosphere comme laboratoire pour les plasmas astrophysiques</i> , ED 127, co-organized with Arnaud Zaslavsky, Filippo Pantellini and Milan Maksimovic, 23 – 27 June 2025, Centre des Conference Jules Janssen, Observatoire de Paris.

Advanced courses on turbulence in space plasmas

October 2014	<i>Space plasma turbulence from MHD to electron scales</i> , “Turboplasmas School”, Department of Physics & Astronomy, University of Florence, Arcetri, Italy.
April 2015	<i>Turbulent spectra in space plasmas</i> , Ecole de Physique des Houches “Turbulence, magnetic fields and self organization in laboratory and astrophysical plasmas”, 23 March–3 April 2015, Les Houches, France.
July 2016	<i>Solar wind turbulence</i> , Summer School “Advances in geophysical and astrophysical turbulence”, 26th July - 5 August 2016, Cargèse, France.
May 2017	<i>Solar wind turbulence</i> , Ecole de Physique des Houches, “From laboratories to astrophysics: the expanding universe of plasma physics”, 2–12 May 2017, Les Houches, France.
June 2018	<i>Turbulence in space plasmas</i> , 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%).
6. Amélie Fournier, M1 Master au Centre International de Physique Fondamentale et de ses Interfaces (ICFP), ENS–PSL, *Solar wind turbulence from MHD to kinetic scales: observations from the Parker Solar Probe Mission*, 18/02–11/07/2025 (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%).
5. Etienne Berriot, M2 PPF, Université Paris-Saclay, “Solar wind radial evolution with Parker Solar Probe and Solar Orbiter” (50%), co-supervision with P. Demoulin (50%), 14/03–9/09/2022.

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, co-tutelle thesis between Sorbonne Université (SU) and IKI (Institut de Recherche Spatiale), Moscow 10/2020–12/2023 (80%), Co-supervision with Pascal Demoulin starting from 2022, and Anton Artemyev, 2020-2022 (UCLA/IKI).
5. Etienne Berriot, Observatoire de Paris, PSL, “Solar wind radial evolution with Parker Solar Probe and Solar Orbiter” (50%), co-supervision with Pascal Demoulin (50%), 10/2022–11/2025.

Post-docs

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).

Popular Science

- Science festivals at Sorbonne University, intervention during the partial eclipse of the Sun on 25/10/2022 on France 3 from the Meudon Observatory.
- Regular conferences for college and high school students during their internship at Paris Observatory.
- Chair of the PNST working groupe on Enseignement & communication grand public, 2023-2024.
- Conference on *Cluster Legacy in Paris Observatory*, October 22, 2024.

Participation in PHD Jury

- President of the jury of the thesis of Thibaud RICHARD (student of Pierre Lesaffre), 30/03/2022, ENS, Paris.
- Examiner of the thesis of Lucas Colomban (student of Matthieu Kretzschmar), 30/11/2023, LPC2E, Orleans.
- Examiner of the thesis of Gaetan Gauthier (student of Olivier Le Contel), 21/12/2023, LPP, Paris.
- Rapporteur for thesis manuscript of Nina Bizien (student of Clara Froment and Thierry Dudok de Wit), LPC2E, University of Orleans, 5/12/2024, France

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”, Space Physics and Aeronomy, Volume 1, Solar Physics and Solar Wind. Nour E. Raouafi (Editor), Angelos Vourlidas (Editor), Yongliang Zhang (Editor-in-Chief), Larry J. Paxton (Editor-in-Chief). Geophysical Monograph Series, Vol. 258. ISBN: 978-1-119-50753-6, 320 pp. American Geophysical Union, Wiley, 2021, p.1, May 2021.

Publications in refereed journals

5. 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*, 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-Wehrlin, E. Lucek, P. Decreau, J. M. Bosqued, P. Travnicsek, 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-Wehrlin, 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-Wehrlin, D. Fontaine, P. Travnicsek, 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)
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).
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
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39. Jovanovic, Dusan; **Alexandrova, Olga**; Maksimovic, Milan; Belic, Milivoj, Fluid Theory of Coherent Magnetic Vortices in High- β Space Plasmas, *The Astrophysical Journal*, Volume 896, Issue 1, id.8, June 2020

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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.
45. Roberts, O. W.; **Alexandrova, O.**; Sorriso-Valvo, L.; Voros, Z.; Nakamura, R.; Fischer, D.; Varsani, A.; Escoubet, C. Philippe; Volwerk, M.; Canu, P.; Lion, S.; Yearby, K., Scale-Dependent Kurtosis of Magnetic Field Fluctuations in the Solar Wind: A Multi-Scale Study With Cluster 2003-2015, *Journal of Geophysical Research: Space Physics*, Volume 127, Issue 9, article id. e29483, 09/2022, doi:10.1029/2021JA029483
46. Etienne Berriot, Pascal Démoulin, **Olga Alexandrova**, Arnaud Zaslavsky, Milan Maksimovic, Identification of a Single Plasma Parcel during a Parker Solar Probe-Solar Orbiter radial alignment, arXiv:2402.12382, *A&A*, Volume 686, A114, June 2024.
47. Alexander Vinogradov, **Olga Alexandrova**, Pascal Démoulin, Anton Artemyev, Milan Maksimovic, André Mangeney, Alexei Vasiliev, Anatoly Petrukovich, Stuart Bale, Embedded coherent structures from MHD to sub-ion scales in turbulent solar wind at 0.17 au, arXiv:2307.10478, *The Astrophysical Journal*, 971:88 (24pp), August 2024
48. Etienne Berriot; Pascal Démoulin; **Olga Alexandrova**; Arnaud Zaslavsky; Milan Maksimovic; Georgios Nicolaou, Radial Evolution of a Density Structure within a Solar Wind Magnetic Sector Boundary, *The Astrophysical Journal*, 981 140, March 2025
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49. M. Kretzschmar; J.-Y. Brochot; T. S. Horbury; K. Rackovic; M. Maksimovic; **O. Alexandrova**; X. Bonnin; G. Jannet; H. O’Brien; A. Crabtree et al., The Solar Orbiter merged magnetic field *Astronomy & Astrophysics*, Volume 699, A236, July 2025
DOI: 10.1051/0004-6361/202554731

Large Collaborations

50. 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. Marghitu, 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.
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 52. I. Zouganelis, and 183 co-authors, The Solar Orbiter Science Act *Astronomy & Astrophysics*, Volume 642, id.A3, 19 pp., October 2020
 53. Maksimovic M. et al., The Solar Orbiter Radio and Plasma Waves (RPW) instrument, *Astronomy & Astrophysics*, Volume 642, id.A12, 23 pp., October 2020
 54. 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>
 55. Maksimovic M. et al., The Solar Orbiter Radio and Plasma Waves (RPW) instrument (Corrigendum), *Astronomy & Astrophysics*, Volume 654, id.C2, 2 pp., October 2021
 56. Maksimovic M., J. Soucek, T. Chust, Y. Khotyaintsev, M. Kretzschmar, X. Bonnin, A. Vecchio, **O. Alexandrova**, S. D. Bale et al., First observations and performance of the RPW instrument on board the Solar Orbiter mission, *Astronomy & Astrophysics*, Volume 656, id.A41, 12 pp., December 2021
 57. Klein, Kristopher G.; Spence, Harlan; **Alexandrova, Olga** et al., HelioSwarm: A Multipoint, Multiscale Mission to Characterize Turbulence, *Space Science Reviews*, vol. 219, no. 8, 2023. doi:10.1007/s11214-023-01019-0.

White papers submitted to ESA and NASA

58. 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

59. 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

60. **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)
61. 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

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

In arXiv only

64. **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
65. **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

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 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 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 March–1 April 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 plenary session 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 Cargèse, Corsica, France, 20–26 September, 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.

30. **O. Alexandrova**, Magnetic turbulence in the solar wind: coherent structures and dissipation scale COSPAR-22-D2.4, COSPAR 2022 - 44th Scientific Assembly, 16–24 July 2022, Athens, Greece
31. **O. Alexandrova** A. Mangeney, C. Lacombe, M. Maksimovic, R. Grappin P. Canu, N. Cornilleau-Wehrin, L. Matteini, D. Perrone, O. Roberts Solar wind turbulence up to electron scales: what have we learned with Cluster, Cluster 22nd anniversary symposium, 6–9/11/2022, ESOC, Germany
32. **Olga Alexandrova**, Turbulence in the solar wind: spectra, coherent structures, connection to instabilities, ISSI Team on Ion kinetic instabilities, 28/11–2/12/2022, Bern, Switzerland
33. **O. Alexandrova**, Embedded coherent structures from MHD to sub-ion kinetic scales in turbulent solar wind, FUNDAMENTAL PLASMA PHYSICS, Torino, Italy, 21–23 June 2023
34. **Olga Alexandrova**, Connection between fluid and kinetic turbulence, ISSI Team #563 Ion kinetic instabilities in the Solar Wind, 4–8/9/2023, Bern, Switzerland
35. **Olga Alexandrova** et al., Coherent structures across the turbulent cascade in the solar wind, AGU 2023 Fall Meeting, Session SH015 (chair Lingling Zhao), San Francisco, CA 11–15 December 2023.
36. **Olga Alexandrova**, Solar Wind Turbulence, International Team ‘Shocks, Waves, Turbulence, and Suprathermal Electrons in the Very Local Interstellar Medium’, ISSI, Bern, May 21–24, 2024
37. **Olga Alexandrova**, Turbulence around Termination Shock: Voyager observations, International Team ‘Shocks, Waves, Turbulence, and Suprathermal Electrons in the Very Local Interstellar Medium’, ISSI, Bern, May 22, 2025
38. **Olga Alexandrova**, Space plasma turbulence and multi-point techniques, Cluster-Plasma Observatory workshop, Centre Jean Monnet (FIAP), Paris, 20–24 October 2025

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 für Weltraumforschung der Österreichischen 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 1, 2021 : JPP Frontiers of Plasma Physics Colloquium
16. March, 20, 2024 : UCLA, USA
17. March, 26, 2024 : Princeton University, PPPL, USA
18. August, 8, 2025 : St. Petersburg State University, Institute of Physics
19. October, 13, 2025 : Laboratoire de Physique, ENS de Lyon, France (page web des Colloquia: <https://www.ens-lyon.fr/PHYSIQUE/seminars/colloquium/>)

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