

Your abstract has been submitted for the 2017 AGU Fall Meeting. You will receive an email confirmation.

Click [HERE](#) to print this page now.

This page indicates that you have completed your abstract submission and an email confirmation will be sent to you.

If you do not receive an email confirmation, please contact agu@confex.com to ensure your abstract was submitted and to have a confirmation email sent to you.

This confirmation does not guarantee that your abstract was accepted and only confirms that your abstract will be submitted for consideration by the Program Committee.

In this system, there is no **'Draft'** option. Once the abstract is submitted, you may review, edit or withdraw your abstract until the deadline of **2 August 2017 23:59 EDT/03:59 +1 GMT**.

Do not withdraw a paid abstract submission if edits are needed or to begin a new submission. You may make any edits to your abstract until the submission deadline.

Abstract fees are nonrefundable.

Once submitted, your abstract will need to be withdrawn if you no longer wish to have it considered by the Program Committee.

Evolution of magnetic field turbulence as observed by the Voyagers in the heliosheath and in the local interstellar medium.

Federico Fraternali¹, Michele Iovieno¹, Nikolai Pogorelov², John D Richardson³ and Daniela Tordella¹, (1)Politecnico di Torino, Torino, Italy, (2)University of Alabama in Huntsville, Space Science, Huntsville, AL, United States, (3)MIT, Cambridge, MA, United States

Abstract Text:

Voyager 1 (V1) left the heliosheath (HS) and entered the Local Interstellar Medium (LISM) in August 2012. At the same time, Voyager 2 (V2) was inside the HS and it is currently approaching the heliopause. The nature of the mainly compressive and "turbulent" fluctuations observed in the HS and in the LISM is still unclear.

The presented study aims at describing the spatial and temporal evolution of turbulence in the HS and in the LISM. It shows a collection of power spectra of magnetic field fluctuations computed from consecutive periods since 2009. Unlike previous analysis, the highest resolution data (48 s) available are used to observe up to five frequency decades. Proper spectral recovery techniques applied in a previous work [Gallana et al, JGR 2016] are exploited to overcome the problem of missing data. Inside the HS, the achieved results are consistent with an anisotropic, mainly inertial, energy cascade in the frequency range [$10^{-5}, 5 \cdot 10^{-4}$] Hz, with spectral index ranging from -1.65 (V2) to -2 (V1) and energy spectral transfer around 10^{-19} erg/(cm³s). Anisotropy is significantly higher at V1 than at V2. In 2009 and 2010, tangential magnetic field fluctuations at V1 contain half of the fluctuating magnetic energy, which is not observed at V2. Large scales prior to the spectral break ($f < 10^{-5}$ Hz) are featured by a mild spectral decay with index between -0.95 and -1.5. Observations of small scales ($5 \cdot 10^{-4} < f < 10^{-2}$ Hz) are limited by the onboard magnetometer's accuracy, though some kinetic effects are

still visible. LISM spectra in 2013.36 - 2014.65 are in agreement with previous observations [Burlaga, Florinski & Ness ApJ Lett, 2015]. A slightly flatter spectral trend than the Kolmogorov's is observed for the radial fluctuations at [10^{-7} , 10^{-6}] Hz. However, the tangential and normal components show nearly a f^{-1} decay. The evolution of turbulent spectra in the LISM is investigated.

Session Selection:

Physical Phenomena in the Outer Heliosphere and Beyond

Submitter's E-mail Address:

federico.fraternale@polito.it

Abstract Title:

Evolution of magnetic field turbulence as observed by the Voyagers in the heliosheath and in the local interstellar medium.

Requested Presentation Type:

Assigned by Program Committee (oral, panel, poster, or lightning poster talk)

Previously Published?:

Yes

Previously Published Material:

Some findings have been reported in Federico Fraternali's PhD thesis (2017, under evaluation).

AGU On-Demand:

Yes

Abstract Payment:

Paid (agu-fm17-270935-7653-2069-7398-2181)

For non-students only: I do not want to be involved in OSPA or the Mentoring program.

First Presenting Author

Presenting Author

Federico Fraternali

Primary Email: federico.fraternali@polito.it

Affiliation(s):

Politecnico di Torino
Torino (Italy)

Second Author

Michele Iovieno

Primary Email: michele.iovieno@polito.it

Affiliation(s):

Politecnico di Torino
Torino (Italy)

Third Author

Nikolai Pogorelov

Primary Email: np0002@uah.edu

Affiliation(s):

University of Alabama in Huntsville
Space Science
Huntsville AL (United States)

Fourth Author

John D Richardson

Primary Email: jdr@space.mit.edu

Phone: 9788286863

Affiliation(s):

MIT
Cambridge MA 02139-0000 (United States)

Fifth Author

Daniela Tordella

Primary Email: daniela.tordella@polito.it

Affiliation(s):

Politecnico di Torino
Torino (Italy)

If necessary, you can make changes to your abstract submission

- You may access your submission to make any edits or submit another abstract by clicking [here](#).
- Your Abstract ID# is: 270935.
- Any changes that you make will be reflected instantly in what is seen

- by the reviewers.
- After the abstract proposal is submitted, you are not required to go through all submission steps to make edits. For example, click the "Authors" step in the Abstract Submission Control Panel to edit the Authors and then click save or submit.
 - When you have completed your submission, you may close this browser window or submit another abstract [Abstract Viewer](#).

[Tell us what you think of the abstract submission process](#)