

Call for applications for a Postdoctoral position

Laboratory of Excellence PLAS@PAR

Title of the postdoctoral project: Are turbulent structures in the solar wind 3D or 2D?

Project description

The Laboratoire d'Etudes spatiales et Instrumentation en Astrophysique (LESIA/CNRS-Observatoire de Paris and Laboratoire de Physique des Plasmas (LPP/CNRS-Ecole Polytechnique, France) invite applications for a post-doctoral position in space plasma turbulence. The position is available in the Space Research Group of LESIA located at Observatoire de Paris-Meudon. The Space Research Group of LESIA is actively involved in the research fields of plasma turbulence and solar wind turbulence.

The successful candidate will investigate the anisotropic nature of MHD turbulence, in particular whether the small scale cascade is axi-symmetric (around the mean field), or not. In solar wind turbulence, measurements by (Chen et al ApJ 758, 120, 2012) show that even small scales depart from axisymmetry, while large scales show the imprint of expansion (Verdini Grappin ApJL, 808, L34, 2015). The postdoc that will be hired will (i) modify the existing EBM code (allowing to follow the development of MHD turbulence in an expanding flow) to be able to deal with the large resolution in the perpendicular directions that is necessary to understand the growth of anisotropy during the plasma transport by the radial wind. S/he will consider wind periods (distance, wind speed) in which the effect of expansion is largest and smallest, in order to successively minimize or maximize the effect of expansion, and so finally reveal, if possible, pure axisymmetric homogeneous turbulence on the one hand, and turbulence with 3D structure.

The postdoc will learn and develop at LESIA state-of-the-art methods for measuring the local anisotropy (including wavelets). The numerical work will be done within the space plasma team at LPP (R. Grappin). The postdoc will thus work on the transversal theme of plasma turbulence, with mainly space applications. The activity will involve basic theory, numerical simulations, and comparison to experimental measurement and observations, whereas the subject is related to the main themes of the PLAS@PAR project: turbulence instabilities and transport, and large scale structures.

Requirements for the candidate

Candidates must have a PhD in plasma physics, astrophysics or in a closely related field, with experience in turbulence in the solar wind, either numerical and/or observational. A strong background in plasma physics and a strong publication record are required.

Location and starting date

LESIA is located at Observatoire de Paris-Meudon, Meudon (France). The expected start date is March 2016.

The application should be sent preferably by e-mail to:

Olga.Alexandrova@obspm.fr, Roland.Grappin@lpp.polytechnique.fr

Applications should include a CV, the PhD certificate, two reference letters, and copies of any previous research-related work. The application deadline is January 31st, 2016.