
Position at Institut d'Astrophysique Spatiale, Orsay

Euclid : data homogenization and detection of galaxies

Context

Euclid is a space mission of the European Space Agency to be launched in 2020. By imaging most of the sky at visible and near infrared wavelengths, Euclid will explore the dark components of the Universe (dark matter and dark energy) by measuring the accelerating expansion of the Universe with independent methods, all relying on highly accurate images of galaxies. One of the challenges is to homogenize the images of disparate nature (angular resolution and noise properties for example) before combining them and achieving the requirements suitable for a scientific analysis.

The Institut d'Astrophysique Spatiale (located in Orsay, France, near Paris) has the responsibility, in the Euclid Science Ground Segment (SGS), of the image homogenization in the OU-MER (Organization Unit: Merge, the part of the SGS dedicated to merge the data). The data come from two Euclid instruments as well as ground data.

In this context, IAS opens a position, with support from CNES, to design, develop, test, and document tools dedicated to the fusion of imaging data in Euclid in general, and the homogenization of functions point spread function (PSF) in particular.

More information about Euclid : <http://www.euclid-ec.org/>

More information about IAS : <http://www.ias.u-psud.fr/>

Job description

The candidate will be in charge of:

- Conduct scientific monitoring about PSF homogenization (literature, algorithms and software) as well as the detection of sources (mainly galaxies) in single band or multiband;
- Test algorithms on existing data (eg HST) or simulations of the consortium;
- Develop and / or optimization algorithms;
- Write code. The environment will be Linux. The language could be python;
- Document all of his/her work;
- Being in daily contact with our Italian and German OU-MER partners;
- Being in daily contact with our partners in the ground segment at CEA-Saclay;
- Being in touch with our partners in other OUs, including OU-VIS at IAP, OU-NIR and and OU-EXT;
- Participate in conference calls and meetings in Europe;
- Ensure that information about Euclid circulate properly in the IAS and OU-MER at the national and European level.

Under the supervision of Dr Hervé Dole, the work will be done within team, in close connection with Dr Nabila Aghanim and Dr Marian Douspis, as well as the project manager Laurent Vibert.

The person will be in contact with researchers of the group "Matière interstellaire et Cosmologie" of IAS, which has an internationally recognized expertise in long wavelength space data, interstellar medium, extragalactic and cosmology.

Requirements

Applicants should have a PhD in astrophysics, or physics or signal processing, or a engineer diploma (having a research experience in the fields of astrophysics, physics, or signal processing). Applicants should justify an experience of writing software, data manipulation and analysis. The work taking place in a local and European team, the applicants should justify their willingness for teamwork. Write and speak English is mandatory.

Having worked in a context involving space sciences is a plus. Experience in analysis of imaging data in the visible and/or near infrared and/or extragalactic field will be highly appreciated. Knowing the IDL and / or python languages is a plus.

Contract

The contract is a 1yr position (CDD) at the level of research engineer (IR). It is renewable depending on the progress of the project, after evaluation with CNES and administrative constraints. The position is open as of September 2013.

The position is located at the Institut d'Astrophysique Spatiale, in the big Orsay campus of the University Paris Sud.

Application and schedule

The application must contain the following:

- a complete vita (CV);
- a letter indicating the adequacy of qualifications and / or experience to the position, and a brief description of the past professional experiences;
- the names (with contacts) of at least two reference people;
- and a publication list if available.

The application must be submitted as a single pdf file (<5Mb) electronically by email to Herve.Dole at ias.u-psud.fr with the subject "Euclid OU-MER CDD CNES application". A confirmation email will be sent.

Applications will be considered as they arrive, until position is filled. We encourage you to submit an application by July 8th, 2013.

Orsay, June 25th, 2013.