Ph.D. Fellowship in Quasar Absorption Lines at IAP, Paris

Applications are invited for a **Ph.D. Fellowship** for a **period of three years** based at **Institut d'Astrophysique de Paris (IAP), Paris**. The position is funded by the *CEFIPRA - Indo-French Center for the Promotion of Advanced Research* grant "A multiwavelength approach to the evolution of cold gas from quasar absorption lines", and the successful candidate will work as part of the *Quasar Absorption Line group* at **IAP** (P. Petitjean and P. Noterdaeme) and **IUCAA** (R. Srianand and N. Gupta).

Eligibility Crietria

1. Indian or French nationality.
2. B.E./B.Tech./M.Sc./M.Tech degree by August, 2016 in a relevant branch of Physics/Electronics/Astrophysics with 55% marks or more.
3. Experience in programming languages such as C, C++, IDL and Python.
4. Good oral and written communication skills in English.
5. Experience in astronomy and astrophysics will be an advantage.

Offer

- Three year contract: the Ph.D. registeration will be at *Pierre and Marie Curie University (UPMC) – Paris 6,* and the thesis supervisors will be *P. Petitjean and P. Noterdaeme.*
- Monthly salary of Euro 1300 plus social security charges.
- Medical benefits as per rule.
- Travel grant for a month-long trip to visit IUCAA, Pune in the second and third years.

More details are available at: http://ufe.obspm.fr/Ecole-Doctorale/Rejoindre-l-Ecole-Doctorale-Joining-the-Doctoral-School/3-Information-for-foreign/

How to apply

Interested candidates should apply with a **curriculum vitae** and a **description of research interests,** by email to **Mr. Santosh Khadilkar** at aocp@iucaa.ernet.in. In email applications, please mention in the subject line *'Application for Cefipra Ph.D. Fellowship in Quasar Absorption Lines'*. The applicants should also arrange for **two letters of reference** to be sent directly to the same email address before the deadline.

Deadline for submission: April, 15, 2016.

Job description

A key question in the modern astrophysics is to understand how the star formation in galaxies proceeds and leads to the present-day Universe. In recent years, radio and optical observations of the local Universe have established a strong relationship between the star formation rate and the properties of the cold atomic and molecular gas in galaxies. Although the overall star-formation history of the Universe is known to very high redshifts, very little is known about the evolution of cold gas beyond the local Universe. An unbiased census of the cold gas in normal galaxies, irrespective of their physical properties such as morphology and mass, is required to understand the physical processes that control the evolution of the star formation history of the Universe.

Our research group at IAP, Paris and IUCAA, Pune is undertaking major projects to unravel the evolution of cold gas in galaxies through the quasar absorption line technique. Specifically, at radio wavelengths, our group is leading the first most sensitive search of cold gas absorption lines using South Africa's Square Kilometer Array

(SKA) precursor, the MeerKAT radio telescope, starting in 2016. In addition, we are developing innovative search of cold gas tracers in the optical using eBOSS (2014-2020), the most elaborate optical quasar survey. Together these two surveys will provide the largest, most sensitive catalogs of quasar absorption lines build till date, and a resource to unravel the evolution of cold gas in the Universe.

The successful candidate will make use of rich multi-wavelength datasets with emphasis on optical spectroscopic observations and data analysis to conduct observational studies of the evolution of cold gas in galaxies.

Enquiries: For administrative enquiries, please contact Mr. Khadilkar at aocp@iucaa.ernet.in. For more information on the Ph.D. registeration process and the research to be carried out as part of the thesis work please contact Patrick Petitjean (ppetitje@iap.fr) and Pasquier Noterdaeme (noterdaeme@iap.fr).