

ANNEX 3

JOB DESCRIPTION

Job Title : Research Associate for LEAP observations at INAF-Osservatorio di Cagliari (Sardinia), Italy

Reports To : The application must be submitted, following the indications in the call – at the email leap@oa-cagliari.inaf.it . People to be addressed for info are:

Andrea Possenti, at possenti@oa-cagliari.inaf.it (science and organization questions)

Claudio Pili, at pili@oa-cagliari.inaf.it (administrative questions).

Overall Purpose of the Job :

As part of the “Large European Array for Pulsars” (LEAP) project (Grant Agreement n. 227947) to detect low-frequency gravitational waves using pulsar timing, the post holder will implement the software and hardware requirements and will conduct the observations at the new 64m Sardinia Radio Telescope (SRT), now in commissioning. This will be done at telescope site in San Basilio (about 35 km north of Cagliari) and at the INAF-Osservatorio Astronomico di Cagliari (INAF-OAC) located in Capoterra (20 km west of Cagliari), Italy, under the supervision of the line manager in coordination with the project PI and the direction of the LEAP project manager. In close collaboration with the international LEAP partners in Germany, France, the Netherlands and the UK, the post holder will also participate in all aspects of the experiment, including the scientific exploitation of the data for a variety of astrophysical questions.

The pulsar team operating at the INAF-OAC comprises four permanent astronomers (Nichi D’Amico, Andrea Possenti, Marta Burgay, Alberto Pellizzoni), and three post-docs (Alessandro Corongiu, Paolo Esposito and the LEAP fellow), plus one PhD student. Their activity is concentrated in three main domains: 1) accurate pulsar timing for gravitational wave background detection, tests of Gravitation theories and reference frames; 2) multi-wavelength neutron star emission analysis (from radio waves with Parkes, SRT, GBT, eVLA etc to infrared with NACO-VLT, to optical with VLT/HST, to high energy bands with XMM/Chandra, AGILE and FERMI/HESS); 3) pulsar searches, mainly with Parkes and SRT radio telescopes. Complementarily to its activity within the LEAP project, the post holder is expected to participate to the data reduction pipeline of SRT and to lead new projects and publications exploiting existing or future data.

Key Responsibilities, Accountabilities or Duties :

- ☐ Implementation of the LEAP experiment at the SRT
- ☐ Observations and observational support for LEAP under the direction of the project manager
- ☐ Participation in the data analysis and interpretation
- ☐ Reporting to the project PI and project manager
- ☐ Communicating with LEAP partners
- ☐ Report the adopted techniques and the obtained results at international conferences and in peer-reviewed journals

Knowledge, Skills and Experience :

- Knowledge of and experience in radio astronomy techniques
- Experience in pulsar and/or VLBI instrumentation and observations
- Experience in pulsar timing
- Experience in software development and implementation
- Programming skills (e.g. C, Fortran)
- Good communication skills
- A good level of knowledge of English language