

## **JOB ANNOUNCEMENT DD 106/2022**

The Istituto Nazionale di Astrofisica – Osservatorio Astrofisico di Arcetri (INAF-OAA) is offering a one-year post doctoral position in ***“Accelerazione di particelle ed emissione di alta energia da ammassi stellari”*** – (***“Particle acceleration and high energy emission from star clusters”***).

### **RESEARCH PROJECT**

By means of analytical and semi-analytical methods, the fellow’s scientific activity will focus on evaluating the gamma-ray emission due to cosmic rays accelerated by stellar winds inside star clusters (SC). Furthermore, he/she will build synthetic populations for Milky Way star clusters, based on Gaia data, and will evaluate the gamma-ray emission from the entire SC populations. The aim is, from one hand, to estimate the number of SC that could be detected by future Cherenkov telescopes, like CTAO, and, from the other hand, to evaluate the contribution that unresolved SC can produce to the diffuse gamma-ray background detected by the Fermi-LAT satellite.

### **ELIGIBILITY**

The appointment is expected to begin by June 5 2023 and will be for one year in the first instance, and renewable afterwards, subject to funding availability and performance review. The yearly gross salary is 28,000 Euros.

Prospective candidates are encouraged to contact:

- Dr. Giovanni Morlino [giovanni.morlino@inaf.it](mailto:giovanni.morlino@inaf.it) (INAF-OAA).

The deadline for sending applications is **January 7, 2023 – 11.59 p.m. (Italian time)**.

### **REQUIREMENTS**

- PhD in Physics or Astronomy or equivalent qualification awarded by public or private Universities, Institutions, Research Organizations or Centers or other qualified research bodies, both in Italy and abroad, in the topics relevant to the scientific and technological area and the research object of this call.

Or alternatively

- Master Degree in Physics or Astronomy or equivalent qualification, together with 3 years of documented experience, awarded by public or private Universities, Institutions, Research Organizations or Centers or other qualified research bodies, both in Italy and abroad, in the topics relevant to the scientific and technological area and the research object of this call.

With the sole scope of admission to this selection procedure, the equivalence of educational qualifications obtained abroad will be verified by the “Selection Committee” as of subsequent Art. 7, on the basis of documentation forwarded by the candidate as foreseen by Art. 3 of this “Call”, provided that, in case the candidate is the winner of the aforesaid procedure, the Administration will acquire the results of

the verification performed by the “Selection Committee” and will forward them together with the documentation listed in Article 3, paragraph 2, letter a) or b) of the Decree n. 189 of the President of the Republic of 30 July 2009, plus the application of the candidate, to the Ministry of University and Research with the scope to acquire the opinion foreseen in Article 4, paragraph 2 of the aforementioned Decree.

➤ **PREFERENCIAL QUALIFICATIONS:**

- Knowledge of particle acceleration theory;
- Familiarity with non-thermal radiative processes;
- Knowledge of the use of Python;
- Knowledge of data analysis software of Cherenkov telescopes (such as gammapy or Ctools)

**APPLICATION PROCEDURE**

Applications must be sent via e-mail to: [inafoarcetri@pcert.postecert.it](mailto:inafoarcetri@pcert.postecert.it). In the email subject the applicant should make explicit reference to: **“Bando STAR CLUS – Domanda per assegno Post Dottorato – DD n. 106/2022”**.

Applications must include the following Annexes **dated and signed**:

- the Application Form (Annex A);
- the self-certification Form (Annex B);

Two reference letters will be appreciated. Editors/contacts should address them by the deadline for application to: [inafoarcetri@pcert.postecert.it](mailto:inafoarcetri@pcert.postecert.it), reporting in the object of the mail: “DD n. 106/2022” and the name of the candidate they are referred to.

The applicant also needs to attach:

- 1) a copy of a valid identification document;
- 2) a curriculum vitae (**dated and signed**);
- 3) **if awarded outside Italy**, copy of academic qualifications and also transcripts in case of Master Degree;
- 4) a list of scientific publications;
- 5) any other work or publication the applicant deems useful;
- 6) a list of all submitted documents.

Incomplete or unsigned applications will be rejected.