

Position description

1. Position identification

Title of post : Research engineer

Type of contract : Fixed term

Category (A,B or C): A

Contract/project period : 7 months

Expected date of employment : 1 March 2026

Proportion of work : 100%

Workplace : Observatoire astronomique de Strasbourg, 11 rue de l'Université, 67000 Strasbourg

Desired level of education : PhD in astronomy or astrophysics, or engineering degree with a strong prior exposure to astrophysics, in particular to the scientific exploitation of astrophysical data.

Experience required : at least two years experience after the PhD (or equivalent)

Contact(s) for information on the position (identity, position, e-mail address, telephone) : Ariane Lançon, Professor, Observatoire astronomique de Strasbourg (UMR 7550, ariane.lancon@astro.unistra.fr, tel +33 (0)3 68 85 24 10

Date of publication : 15 December 2025

Closing date for the receipt of applications : 12 January 2026

2. Research project or operation

Optimized analysis of the photometry of globular clusters in the stochastic regime.

3. Activities

➤ Description of the research activities :

Galaxies typically host a number of old star clusters known as globular clusters (GCs). GCs were formed early on, more than 10 Gyr ago, in early galaxies that later were altered through galaxy interactions and merging processes. GC properties, such as their masses and stellar populations (age, metallicity), provide essential information about galaxy formation and evolution since it is believed that most stars are initially formed in clusters, of which only some survived until today as bound objects. However, the observed properties of GCs in various photometric bands are

typically impacted by stochasticity (randomness) in the exact sample of masses of the stars they contain: the rarest stars are also the most luminous, and the detailed individual properties of these stars have global impact. Previous studies on GCs have demonstrated biases in their estimated properties when using non-stochastic models, emphasizing a need for the development and optimization of stochastic analysis tools. Our project tackles this issue, and aims at providing an optimized hopefully user-friendly method to estimate fundamental GC properties in a variety of observational circumstances.

Utilizing data from the Euclid space telescope (internal data release DR1) or other telescopes, we will analyze GCs around galaxies in various environments, focusing on establishing robust statistics for the GCs of dwarf galaxies. Ultimately, this project aims to construct a comprehensive understanding of the GC population in the Local Universe.

The person employed will be expected to contribute or to have contributed to the gathering of the relevant Euclid data, to write code both to produce (where necessary) and to exploit stochastic versions of the predictions of (existing) population synthesis models, and to synthesize the results, thus contributing to publications (of which they may be first author if his contribution justifies it).

➤ **Related activities :**

The person employed is welcome to contribute to outreach activities, to the supervision of bachelors' or masters' students, or to teaching activities but these should not represent more than 10% of his/her work time.

4. Skills

➤ **Qualifications/knowledge :**

Candidates should have obtained PhD in astronomy or astrophysics, or an engineering degree with demonstration of a strong prior exposure to astrophysics and fundamental research environments. Experience in the astrophysical questions related to the globular cluster populations of galaxies and to other low-mass systems such as dwarf galaxies, including the relationships between the two, will be highly desirable for this short focused contract. An understanding of population synthesis modelling is also necessary.

➤ **Operational skills/expertise :**

Experience with the exploitation of large sets of astronomical observations at optical/near-infrared wavelengths; because the contract time is short, experience with extragalactic globular clusters and with other low-mass systems in the Local Universe. Extensive experience with photometry for resolved and unresolved astronomical sources, and full independence in the numerical programming of the tasks at hand, within a python framework.

➤ **Personal qualities :**

Ability to interact politely, spontaneously and efficiently in a team (in English; French is not a requirement), to share knowledge, to write in English. Interest in the exploration of new numerical and mathematical tools and methods.

5. Environment and context of work

➤ **Presentation of the laboratory/unity :**

The project is funded by the Interdisciplinary Thematic Institute IRMIA++ Mathematics, Interactions and Applications which gathers research teams in mathematics, computer science and astrophysics.

The engineer will be assigned to Observatoire astronomique de Strasbourg (ObAS), where he will work in the GALHECOS team. ObAS is a research laboratory in astrophysics, with research topics that cover numerous areas related to both the local and the large scale Universe. Several researchers in the GALHECOS team are experts of stellar population studies, globular clusters and low mass galaxies.

➤ **Hierarchical relationship :**

The researcher will be under the scientific responsibility of Pr. **Ariane Lançon**.

➤ **Special conditions of practice (notice attached):**

The recruited person will benefit from the same work conditions as other members of the GALHECOS research team.

To apply, please send a detailed CV, a letter of motivation, and the name of three contacts who may be asked for a recommendation to :

ariane.lancon@astro.unistra.fr