



The High-Energy Astrophysics (HEA) group of the Institute for Astronomy and Astrophysics at the University of Tübingen (IAAT) invites applications for

Two Positions for Doctoral Studies (m/f/d, E13 TV-L, 66%)

1. "Multiwavelength modelling of the gamma-ray binary PSR B1259-63"

This project is conducted in the context of the gamma-ray binaries study program performed at the HEA group at IAAT. Within this project, we analyze observational high-energy data which will be taken during the 2024 periastron passage of PSR B1259-63. This system belongs to the rare class of gamma-ray binaries. Such systems are capable of accelerating particles up to extremely high, i.e. TeV, energies. Data analysis of modern X-ray, high-energy gamma-ray, and TeV gamma-ray observatories (including Swift/XRT, INTEGRAL, Fermi/LAT and H.E.S.S.) will be performed. The project also comprises multiwavelength studies of this peculiar object across the entire electromagnetic spectrum, as well as interpretation of the broadband spectrum using theoretical modelling. The successful candidate is expected to participate in the development of the model describing the features of PSR B1259-63. Participation to other projects is also possible.

2. "Studies of Particle Acceleration in Supernova Remnants exploiting the eROSITA Survey"

This project is conducted in the context of studies of Galactic stellar endpoints in the German eROSITA consortium, which IAAT is a member of. The project is conducted in the context of the study program to investigate the role of supernova remnants in the acceleration of Galactic cosmic rays, that is performed at the HEA group at IAAT. Within this project, eROSITA X-ray data will be exploited to search for signatures of particle acceleration in an appropriate sample of Galactic supernova remnants. The data will be augmented with multiwavelength data across the electromagnetic spectrum, up to TeV energies. Results will be confronted with model expectations, that the successful candidate is expected to explore in the context of this project. Based on the results, planning and execution of follow-up observations of selected objects with high-energy observatories is foreseen.

Job details and application procedure

The positions are **for 3 years**. Expected **starting date is September 1st, 2024**; earlier or later starting dates can be negotiated. Remuneration is based upon the German federal public service pay grade (66% of TV-L E13, according to funding conditions). Applicants are required to have a master or equivalent university degree in astrophysics or physics. The University of Tübingen is committed to



equal opportunity and diversity. We invite qualified women to apply. Applications from equally qualified candidates with disabilities will be given preference.

Applications, including a motivation letter, a full *curriculum vitae* (including a list of publications if applicable), and the names and email addresses of two references, should be sent, as soon as possible and not later than June 10th, 2024, via e-mail to

- Prof. Andrea Santangelo, andrea.santangelo@uni-tuebingen.de
- Dr. Gerd Pühlhofer, gerd.puehlhofer@uni-tuebingen.de
- Dr. Denys Malyshev, denys.malyshev@astro.uni-tuebingen.de

clearly indicating the position(s) to which you would like to apply.

The process of hiring the selected candidate is handled by the central administration of the University of Tübingen.