Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Postdoctoral Position in High-Energy Astrophysics to Support the INTEGRAL Science Legacy Archive

The Julius-Maximilians-University Würzburg, Germany, invites applications for one postdoctoral position to work on the construction of the 22-year soft gamma-ray catalogue from measurements of the Spectrometer onboard the International Gamma-Ray Astrophysics Laboratory (INTEGRAL/SPI).

ESA's INTEGRAL satellite mission has been in orbit since October 2002 and its science operations will end in February 2025. The coded-mask spectrometer telescope SPI obtains high-resolution spectra in the range 0.02–8 MeV by using its 19 cryo-cooled high-purity germanium detectors. During the mission, SPI observed more than 200 soft gamma-ray sources, many of which are variable in time. In addition, SPI is currently the most sensitive instrument to diffuse extended emission from Galactic continuum and gamma-ray lines. After more than 22 years of the INTEGRAL mission, this project aims to analyse *all* SPI data towards a significant contribution to ESA's INTEGRAL Science Legacy Archive (ISLA). In particular, a catalogue of all detected sources should be created, and the possibility to easily estimate upper limits for non-detected sources within a web interface. The software to perform these tasks is partly available (written in C++, IDL, Python), and should be improved and automated within this project.

We offer a vibrant research environment in high-energy astrophysics and multi-messenger astronomy in Würzburg. The Chair for Astronomy at the University of Würzburg is also heavily involved in the software development for NASA's future Small Explorer satellite mission COSI, the Compton Spectrometer and Imager. This project will be conducted in close collaboration with the University of Tübingen, the Friedrich-Alexander-University Erlangen-Nürnberg (Dr. Karl Remeis-Observatory & ECAP), the Max-Planck-Institute for Extraterrestrial Physics in Garching, and the ESAC Science Data Centre.

Researchers with a PhD in physics or astronomy, or equivalent qualification, and with relevant experience in high-energy astrophysics or (astro-)particle physics are encouraged to apply for this postdoc position. Strong coding abilities are desired, in particular concerning the handling of large data sets and forward-folding techniques. A good understanding of particle detectors, detector backgrounds, and statistics is advantageous.

The position is funded through the German Research Society (DFG), available starting in spring 2025, and will be for the duration of three years. The salary will be paid at German public service rate (TV-L E13 at 100%). Social benefits are granted according to the regulations for public service, including healthcare, unemployment insurance, and pension funds.

Applications should be sent as a single PDF in English language by **February 15, 2025**, to:

thomas.siegert@uni-wuerzburg.de.

Please indicate in your application when your earliest possible starting date would be. All applications should include a motivation letter with a brief (1 page) description of research interests, a CV, a list of publications, and university certificates. Please arrange for two letters of reference to be sent to the same email by the application deadline. The review will begin immediately, and later applications may be considered if received before the selection process is completed.

For further information about the position, please contact:

Dr. Thomas Siegert (thomas.siegert@uni-wuerzburg.de) at the University of Würzburg.

The University of Würzburg values equality and diversity in research and encourages women and members of underrepresented groups to apply. Preference will be given to people with disabilities in case of equivalent qualification.