



## **IceCube, CTA, and HAWC postdoctoral scholar positions at the University of Wisconsin**

The University of Wisconsin – Madison (UW) is searching for postdoctoral scholars to work on multi-messenger and particle astrophysics, specifically focusing on neutrino astronomy with IceCube and gamma-ray astronomy with the Cherenkov Telescope Array (CTA) and the High-Altitude Water Cherenkov Gamma-ray Observatory (HAWC). We anticipate hiring three positions

1. A postdoc focused on high-energy neutrino data analysis for IceCube
2. A postdoc focused on gamma-ray data analysis and instrumentation for CTA
3. A postdoc focused on gamma-ray data analysis for HAWC

Successful applicants will work within UW's Wisconsin IceCube Particle Astrophysics Center (WIPAC). Although each position will be focused on a particular project, WIPAC is a center for multi-messenger astrophysics and includes opportunities for cross-collaboration between projects. The postdocs will work closely with WIPAC faculty (Ke Fang, Francis Halzen, Kael Hanson, Albrecht Karle, Lu Lu, Justin Vandenbroucke) as well as WIPAC students and other postdocs.

A postdoctoral position is available for a highly motivated individual to join the ultra-high-energy Universe group led by Professor Lu Lu. The successful candidate will analyze data from both the IceCube Neutrino Telescope (<https://icecube.wisc.edu/>) and the Pierre Auger Observatory (<https://www.auger.org/>) to explore a possible common origin of PeV neutrinos with the highest energy particles. Prior experience of data analysis with Auger or IceCube is highly desirable.

The Cherenkov Telescope Array (<https://cta-observatory.org>) is the next-generation gamma-ray observatory. CTA is currently under construction, with multiple prototype telescopes in operation as well the first Large-Sized Telescope. WIPAC plays a leading role in the prototype Schwarzschild-Couder Telescope (pSCT), a CTA pathfinder telescope located next to VERITAS at the Fred Lawrence Whipple Observatory (FLWO) near Tucson, Arizona. The pSCT recently detected very-high-energy gamma rays from the Crab Nebula, the first step in establishing the scientific capabilities of its innovative dual-mirror technology. A project is underway to substantially upgrade the pSCT camera. The successful applicant will work with Professor Justin Vandenbroucke on analysis (of pSCT data, other CTA data, and/or simulated data), observing with the pSCT, and hardware activities in the lab and on-site at FLWO.

### **Wisconsin IceCube Particle Astrophysics Center (WIPAC)**

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608-890-1124 Fax: 608-262-2309 E-mail: [postdoc@wipac.wisc.edu](mailto:postdoc@wipac.wisc.edu) [www.wipac.wisc.edu](http://www.wipac.wisc.edu)

The High-Altitude Water Cherenkov Gamma-ray Observatory is a wide-field gamma-ray detector that has been observing the Northern TeV sky for over four years. Its outrigger array has recently finished commissioning and is further increasing HAWC's highest energy sensitivity. The successful applicant will work with Professor Ke Fang and contribute to WIPAC efforts on the operations and analysis methods for HAWC, as well as science analysis of HAWC, IceCube, and Fermi-LAT data. The successful applicant will also have the opportunity to contribute actively to the development of the future Southern Wide-field TeV Observatory (SWGGO).

WIPAC members play leading roles in IceCube, CTA, HAWC, and the Askaryan Radio Array. We also have strong affiliate relationships with the Fermi Large Area Telescope and VERITAS. WIPAC is a vibrant institute, performing world-leading research in instrumentation and data analysis for multi-messenger and particle astrophysics. WIPAC and the UW Physics and Astronomy departments provide a stimulating environment for scientific research, collaboration, and postdoctoral career development, with essential involvement in DES, the Rubin Observatory, LUX, LZ, CMS, ATLAS, DUNE, and plasma physics. WIPAC and the UW Physics Department are also engaged in a wide range of outreach activities.

A PhD in physics, astronomy, or a closely related field must be completed before the position begins. Experience in multi-messenger astronomy, particle astrophysics, high-energy astrophysics, or particle physics is expected. Demonstrated excellence in computer programming and data analysis is expected of all candidates. For the CTA position, interest and skill with hardware, in laboratory and/or field settings, is preferred. The successful applicants will have demonstrated ability to work both independently and collaboratively and to communicate clearly.

Each position is for two years, with possible extension for a third year contingent on performance and funding. Review of applications will begin immediately and continue until the positions are filled. Submission by **Dec 20, 2020** is recommended for full consideration, however applications will be considered until the positions are filled. The start date is negotiable. WIPAC and UW are committed to increasing diversity in our field and encourage members of under-represented populations to apply (<https://diversity.wisc.edu>).

To apply, submit a CV (including a list of publications to which you have made specific contributions), statement of research interests including which position(s) you would like to be considered for, and cover letter to [postdoc@wipac.wisc.edu](mailto:postdoc@wipac.wisc.edu). Please also arrange for three letters of recommendation to be sent to the same address. Inquiries can be sent to Tina Chorlton ([tjislason@wipac.wisc.edu](mailto:tjislason@wipac.wisc.edu)) or the relevant WIPAC faculty ([justin.vandenbroucke@wisc.edu](mailto:justin.vandenbroucke@wisc.edu), [lulu@icecube.wisc.edu](mailto:lulu@icecube.wisc.edu), [kefang@physics.wisc.edu](mailto:kefang@physics.wisc.edu)).

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