

The **Experimental Particle Physics** group at the **Johns Hopkins University** invites applications for **postdoctoral Fellowship positions**. The William H. Miller III Department of Physics and Astronomy has opened several prestigious named Fellowship positions in any area of Physics and Astronomy:

<https://academicjobsonline.org/ajo/jobs/25522>

Applicants are requested to list the names of faculty members whose interests most closely resemble theirs. Consideration of applications will begin on 1 December 2023 and continue until all available positions are filled. The target start date of the named Fellowship positions is in the Fall of 2024, but an earlier start date will be considered. Applicants will also be considered for other appropriate postdoctoral positions in the Department, with a flexible start date.

The Experimental Particle Physics is one of the areas of focus in the Department. The collider-based efforts include the Compact Muon Solenoid (CMS) experiment at LHC, fixed-target SpinQuest experiment at FNAL, and feasibility studies of a Future Circular Collider. The neutrino and dark matter efforts include the Cryogenic Underground Observatory for Rare Events (CUORE), the CUORE Upgrade with Particle Identification (CUPID), the Haloscope at Yale Sensitive to Axion Cold dark matter (HAYSTAC), studies of DARK MATTER In CCDs at Modane (DAMIC-M), and R&D for the search for low-mass dark matter with CCDs (OSCURA), and R&D efforts on future microwave and bolometric detectors.

The CMS group (Profs. Gritsan, Maksimovic, Swartz) has played a significant role in discovery and measurement of spin-parity and other properties of the Higgs boson, pursued searches for new beyond-the-standard-model phenomena and tests of electroweak theory, and engaged in development of phenomenological tools for LHC data analysis. There is a possibility to play a leading role in the analysis of the full Run-3 dataset, support of the CMS silicon pixel detector calibration and alignment, and engage in Phase-2 upgrade of the silicon pixel detector. The group is also involved in upgrade of the SpinQuest experiment with the target to search for dark matter and feasibility studies for future Higgs factories.

The group of Prof. Speller focuses on low-temperature searches for physics beyond the Standard Model, with a concentration on searches for dark matter and neutrinoless double-beta decay. The group's work includes analysis, software, and hardware efforts on campus. HAYSTAC is a microwave cavity experiment that employs state-of-the-art quantum sensing and microwave techniques to search for axions with masses in the range 10 to 100 μeV . CUORE, and the upcoming upgrade CUPID, are neutrinoless double-beta decay experiments which also search for a wide array of rare events, including symmetry violations and WIMP dark matter interactions.

The group of Prof. Norcini develops instruments with exquisite sensitivity and background rejection capabilities for dark matter and neutrino experiments. The group is working with low-threshold, single-quanta skipper CCDs to directly detect dark matter. With the start of construction in 2024, our main focus is DAMIC-M, which will observe light dark matter-electron scattering for the first time or set world-leading limits in the sub-GeV mass regime. In parallel, we will also be involved with sensor R&D for the larger, lower background OSCURA experiment to be constructed in 2028 at SNOLAB. There are opportunities for fellows to lead various efforts within the projects, including CCD testing, underground detector construction, calibration studies, and physics analyses.

For further details about the application process, please refer to AcademicJobsOnline.