T2K Post-Doctoral Position
in Experimental High Energy Physics at
York University, Toronto, Canada

The York University high-energy physics group has an opening for a postdoctoral position to work on the T2K experiment in Japan and R&D towards future long-baseline neutrino experiments. The T2K collaboration includes a Canadian group which has played a major role in the development of the experiment, including the Optical Transition Radiation (OTR) detector which monitors the primary proton beam in front of the neutrino beam production target. The York group is involved in the ongoing data-taking and physics analysis of the T2K experiment, with a particular emphasis on pion production in neutrino scattering and its effect on oscillation measurements. The York group is also actively involved in the Intermediate Water Cerenkov Detector (IWCD), a near detector for the next generation Hyper-Kamiokande experiment in Japan. Work has included PMT studies, fabrication of 3D support structures, and simulation work for light collection efficiency.

The York group has taken a leading role in the Canadian efforts on the T2K neutrino beamline, in particular with regard to the design, construction and operation of the OTR beam monitor (in close collaboration with the University of Toronto and TRIUMF), and prediction of the neutrino flux. There will be an upgrade to the OTR monitor in 2022 in preparation for the beam intensity upgrade at J-PARC. The successful candidate will be expected to take a leadership role in this ongoing project in all the aspects of OTR data analysis and further improvements to the OTR simulation efforts, as well as the installation of a new OTR in Japan. The candidate would also work on physics analysis with the data collected by the T2K experiment.

The York group is involved in developing multi-PMT modules (mPMT) for IWCD and the HyperK project within the HyperK-Canada collaboration. We are preparing for a 50-ton scale Water Cerenkov Test Experiment (WCTE) at CERN in 2023 to study the response and calibration of mPMTs and to characterize the response of a water Cherenkov detector for muons, electrons, protons, and pions. Hardware development, 3D-printing of the support matrix, testing of the entire assembly, and simulation efforts has matured in Canada, and York will be involved in many of these projects. This is a very exciting opportunity for an incoming researcher.

Candidates should have a recent Ph.D. degree in experimental particle physics. Some experience with neutrino physics is desirable, but exceptional candidates from other areas of particle physics will also be considered. Knowledge of hardware and electronics is highly desirable. The successful candidate will primarily be based in Toronto but travel to Japan and CERN will be expected. The position is for two years with a possible extension of a year, preferably starting in May 2021.

Due to the immediacy of the position, review of applications will start immediately until the position is filled. Interested candidates should send a cover letter, Curriculum Vitae, statement of research interests, and arrange to have at least three letters of reference sent electronically to:

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