Canadian Association of Physicists

Association canadienne des physiciens et physiciennes

Contribution ID: **139**   Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) Muon Track Reconstruction for the P-ONE Neutrino Telescope

Monday 7 June 2021 13:00 (10 minutes)

The neutrino, a fundemental particle, offers the potential to image parts of the universe never before seen and can provide an early warning for cosmic events. With their ability to carry information across the universe unperturbed, neutrinos offer a clear image of the cosmos and can provide insight into its nature with relative ease. Learning from successful neutrino telescopes such as IceCube, the Pacific Ocean Neutrino Explorer (P-ONE) will be built in the Cascadia Basin in the Pacific Ocean, supported by an international collaboration. Located 2660 meters below sea level, P-ONE will consist of 70 strings each equipped with at least 20 sensitive photodetectors and 2 calibrators in an infrastructure provided by Ocean Networks Canada. A key step in the data analysis pipeline is the reconstruction of the path of particles as they pass through the detector. Using simulated data, I will present my work in reconstructing muon tracks in this proposed detector through a likelihood framework.

Author: GHUMAN, Dilraj (Queens University)

Presenter: GHUMAN, Dilraj (Queens University)

Session Classification: M2-10 Machine learning in HEP & Novel reconstruction techniques I (PPD) / Apprentissage automatique en PHE et nouvelles techniques de reconstruction I (PPD)

Track Classification: Particle Physics / Physique des particules (PPD)