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Contribution ID: **3906** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) MEASUREMENT OF KAON-CARBON FORWARD DIFFERENTIAL CROSS SECTION AT 30 GEV/C WITH EMPHATIC SPECTROMETER

Wednesday 21 June 2023 14:30 (15 minutes)

The precision measurements of neutrino oscillation parameters and neutrino-nucleus scattering and also unprecedented sensitivity to physics beyond the Standard Model are the goals of the Hyper-K experiment, a next generation long-baseline neutrino experiment. To be able to achieve these high precision and sensitivity these experiments need a reduction on the uncertainties in neutrino fluxes calculations. New measurements of hadron-nucleus interaction are needed to reduce uncertainties of neutrino fluxes. EMPHATIC is a low-cost, table-top-sized, hadron-production experiment located at the Fermilab Test Beam Facility in Chicago that aims to measure hadron scattering and production cross sections that are relevant to neutrino flux predictions. In my presentation I will show measurements of the differential cross-section as a function of scattering angle for kaon carbon interactions with a single charged particle in the final state at beam momenta of 30 GeV/c. These results can be used in current and future long-baseline neutrino experiments, and demonstrate the feasibility of future measurements by the EMPHATIC spectrometer.

Keyword-1

Hadron Scattering

Keyword-2

Neutrino Flux

Keyword-3

High Energy Physics

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