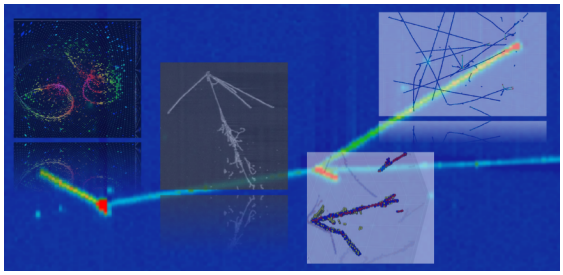

Contribution ID: **32** Type: **Long talk (25min. + 10min. Q/A)**

Dual use of Normalizing Flows for efficient neutrino-nucleus cross-section sampling and bayesian modelling of systematical uncertainties for the T2K near-detector fit

Monday 27 October 2025 15:35 (25 minutes)

We present a dual application of conditional normalizing flows to (i) accelerate Monte Carlo sampling of exclusive neutrino–nucleus cross-sections and (ii) model uncertainty distributions within bayesian fits of systematics, illustrated on the T2K near-detector fit. Although aimed at different applications and uses, both efforts share a nearly identical implementation: an iterative training procedure that refines a conditional flow to match high dimensional conditional distributions. We describe the common framework, task-specific adaptations, and the resulting gains compared with Monte Carlo techniques currently used for these tasks.

Presenter: EL BAZ, Mathias

Session Classification: Experiments - T2K