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Type: **Short talk (15min. + 5 min. Q/A)**

Bayesian Neural Networks for classification problems with LAr TPCs

Wednesday 29 October 2025 11:30 (15 minutes)

Liquid Argon Time Projection Chambers (LAr TPCs) provide detailed imaging of neutrino interactions, making them an ideal environment for machine learning based classification tasks. While conventional neural networks have achieved strong performance in this domain, they do not naturally account for uncertainties, an essential requirement for robust physics analyses. Bayesian Neural Networks (BNNs) address this limitation by treating network parameters probabilistically, enabling classification outputs with calibrated uncertainty estimates. In this talk, we present applications of BNNs to classification problems in neutrino experiments with LAr TPCs.

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Session Classification: Neural Inference Techniques