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

Unsupervised clustering for neutrino event exploration

Friday 31 October 2025 09:40 (15 minutes)

Neutrino interactions are poorly understood and modeled, with some processes entirely missing from simulation. This sometimes leads to surprising observations from rudimentary data analysis techniques such as hand-scanning. Here, the use of contrastive learning and unsupervised clustering is investigated as a more systematic way to explore event types in data. Although the aim is to investigate unmodeled neutrino interaction mechanisms, this describes a pilot study with cosmic muons as a proof of principle.

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Session Classification: AI/ML for New Physics Search