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## **Hadronization Tuning with GENIE v3.**

The next generation of neutrino oscillation experiments rely on the precise understanding of neutrino interactions in a wide energy range. In particular, the knowledge of the exact mixture of hadrons in showers affects the efficiency to distinguish between NC/CC events, the topological characterization, and impacts the estimation of backgrounds. The GENIE neutrino Monte Carlo developed an effective low-mass hadronization model, known as AGKY, which incorporates PYTHIA events at high invariant mass. Only the low-AGKY model parameters were extracted from neutrino hadroproduction data. Moreover, comparisons of the GENIE model against an expanded and carefully curated archive of neutrino-induced hadron shower data exposed disagreements between different datasets, which further deteriorates at the PYTHIA region. The GENIE Collaboration aims to address this issue by tuning the hadronization model against all the available charged multiplicity bubble chamber data, providing the first uncertainty estimation for the GENIE hadronization model.

### **Mini-abstract**

First GENIE hadronization tune addresses disagreements with neutrino interaction data

### **Experiment/Collaboration**

GENIE Collaboration

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