Contribution ID: **973** Type: **Parallel session talk**

Enhancing Event Reconstruction for Hyper-Kamiokande's Water Cherenkov Detectors through Machine Learning

Saturday 20 July 2024 09:38 (17 minutes)

Hyper-Kamiokande (Hyper-K) is a next generation water-Cherenkov neutrino experiment, currently under construction to build on the success of its predecessor Super-Kamiokande (Super-K). With 8 times greater fiducial volume and enhanced detection capabilities, it will have significantly reduced statistical uncertainties as compared to Super-K. For corresponding suppression of backgrounds and systematic uncertainties, advances in event reconstruction, event selection, and analysis techniques are required. Machine learning has the potential to provide these enhancements, taking full advantage of new and improved detectors and enabling new analysis techniques to meet the physics goals of Hyper-K. This talk provides an overview of some areas where machine learning is explored for event reconstruction in Hyper-K. Results and comparisons to traditional methods are presented along with discussions of the plans and challenges for applying machine learning techniques to water Cherenkov detectors.

Alternate track

1. Computing, AI and Data Handling

I read the instructions above

Yes

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Session Classification: Computing and Data handling

Track Classification: 14. Computing, AI and Data Handling