



Contribution ID: 529 Contribution code: MOPS70

Type: **Poster Presentation**

NuMI beam muon monitor data analysis and simulation for improved beam monitoring

Monday, 20 May 2024 16:00 (2 hours)

Following the decommissioning of the Main Injector Neutrino Oscillation Search (MINOS) experiment, muon and hadron monitors have emerged as essential diagnostic tools for the NuMI Off-axis ν_μ Appearance (NOvA) experiment at Fermilab. For this study, we use a combination of muon monitor simulation and measurement data to study the monitor responses to variations in proton beam and lattice parameters. We also apply pattern-recognition algorithms to develop machine-learning-based models to establish correlations between muon monitor signals, primary beam parameters, and neutrino flux at the detectors.

Footnotes

Funding Agency

U.S. Department of Energy

Paper preparation format

LaTeX

Region represented

North America

Primary author: SNOPOK, Pavel (Illinois Institute of Technology)

Co-author: YU, Yiding (Illinois Institute of Technology)

Presenter: SNOPOK, Pavel (Illinois Institute of Technology)

Session Classification: Monday Poster Session

Track Classification: MC5: Beam Dynamics and EM Fields: MC5.D13 Machine Learning