Contribution ID: **280**   Type: **Poster**

Event re-weighting in simulation using XGBoost in B(s) to phi(1020) mu mu analysis for RunII at 13Tev

Monday 12 December 2022 14:00 (1 hour)

In this work, we have discussed how a multivariate algorithm, namely XGBoost, can deal with the disagreement between data and simulation in any analysis. The goal is to train the model in the control channel and extract scale factors which can be used for event re-weighting in the corresponding signal channel. In $B_s \to \phi\mu^+\mu^-$ analysis, $B_s \to J/\psi\phi$ is the normalization channel and is used to train the XGBoost model. $B_s \to J/\psi\phi$ simulation and data (where the background is statistically subtracted: \textit{splot}) are supplied as inputs to XGBoost with important kinematic variables chosen as input variables. The multivariate algorithm learns the discrepancies between data and simulation through these input variables. It represents them in terms of probability distributions which are later used to determine the scale factors.

Session

Quark and Lepton Flavour Physics

Primary author: RATURI, Rishabh (Indian Institute of Technology Bhubaneswar)

Presenter: RATURI, Rishabh (Indian Institute of Technology Bhubaneswar)

Session Classification: Poster - 1