Contribution ID: **113** Type: **Poster Presentation**

Discrimination of Signal-Background events with Supervised and Semi-Supervised Machine Learning in the search for bosons decaying to Z + γ final state

Thursday, 11 July 2019 15:00 (2 hours)

The amount of data produced in the Large Hadron Collider requires modern techniques to improve the processing, classification and regression tasks. In this study, we develop machine learning algorithms that can learn patterns in the data and lead to accurate discrimination of Signal and Background in the search for new bosons decaying into Z + γ final state. The toolkit for multivariate analysis, scikit-learn boosted decision trees and deep neural networks with tensorflow are employed in this study and compared against each other to find the technique that best improves the quality of the signal in the search for new bosons.

Apply to be
 considered for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

MSc

Primary author: Ms BALOYI, Nkateko (University of the Witwatersrand)

Co-authors: Prof. MELLADO, Bruce (University of the Witwatersrand); Dr RUAN, XIFENG (WITS)

Presenter: Ms BALOYI, Nkateko (University of the Witwatersrand)

Session Classification: Poster Session 2

Track Classification: Track G - Theoretical and Computational Physics