Contribution ID: **23** Type: **not specified**

Implications of the anomalous production of leptons at the LHC

Wednesday 29 January 2020 16:20 (20 minutes)

Due to a number of features from proton-proton collisions taken during Run 1 data taking period at the LHC, a boson with a mass around the Electro-Weak scale was postulated such that a significant fraction of its decays would entail the Standard Model (SM) Higgs boson and an additional scalar, S. One of the phenomenological implications of a simplified model, where S is treated a SM Higgs boson, is the anomalous production of leptons at the LHC. These discrepancies appear in Run 2 data in corners of the phase-space predicted above. In these corners of the phase-space different SM processes dominate, indicating that the potential mismodeling of a particular SM process is unlikely to explain them. After summarising the anatomy of the anomalies, the talk will concentrate on the implications for measurements at the LHC. This will include, but will not be limited to, Higgs boson and top-mass related measurements. Implications in astro-particle and radio astronomy will be discussed.

Author: MELLADO GARCIA, Bruce (University of the Witwatersrand)

Presenter: MELLADO GARCIA, Bruce (University of the Witwatersrand)

Session Classification: Session II