**SAIP2019** 



Contribution ID: 116

Type: Poster Presentation

## Connecting the Muon g-2 with the Search for New Particles at the LHC

The muon anomalous magnetic moment (muon g-2) represents one of the long-standing unsolved problems in particle physics. The current value of the discrepancy between the experimental and theoretical values is between three and four standard deviations. The large discrepancy could indicate the existence of new physics. A number of studies have shown that a 2-Higgs-Doublet Model (2HDM) along with an extra singlet scalar S can explain several anomalous results observed in multiple lepton production at the Large Hadron Collider (LHC). This model is considered as a possible explanation for the discrepancy in the muon g-2, and it is shown that the existing constraints on the model do not allow for an explanation of the discrepancy to within 2 sigma. For this reason, additional leptonic degrees of freedom are introduced alongside the 2HDM+S. The contributions from this model to the muon g-2 are evaluated and constraints on the model are presented.

## Apply to be<br> considered for a student <br> &nbsp; award (Yes / No)?

Yes

## Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD, N/A)?

MSc

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Session Classification: Poster Session 1

Track Classification: Track B - Nuclear, Particle and Radiation Physics