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The anomalous magnetic moment of the muon in a GUT model with $A_4 \times Z_5$ family symmetry

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We will discuss the low energy predictions arising from a GUT scale Pati-Salam gauge group with an $A_4 \times Z_5$ family symmetry. This results in four soft scalar masses at the GUT scale: one left-handed soft mass and three right-handed soft masses, one for each generation. We will show that this model can correctly describe measurements of the anomalous magnetic moment of the muon, which currently suffers a puzzling 3σ excess of the experimentally measured value over the theoretical prediction. As the consequence, the model predicts specific regions of the MSSM parameter space including light smuons and neutralinos, which may also potentially explain di-lepton excesses observed by CMS and ATLAS.

Authors: Prof. BELYAEV, Alexander (University of Southampton & Rutherford Appleton Laboratory); Dr MORAIS, António (Universidade de Aveiro); MILLER, David (University of Glasgow); Dr CAMARGO-MOLINA, Eliel (Lund University); SCHAEFERS, Patrick (University of Southampton); KING, Stephen

Presenter: MILLER, David (University of Glasgow)

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