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Dead or alive? Implications of the muon anomalous magnetic moment for 3-3-1 models

We have witnessed a persistent puzzling anomaly in the muon magnetic moment that cannot be accounted for in the Standard Model even considering the existing large hadronic uncertainties. A new measurement is forthcoming, and it might give rise to a 5 σ claim for physics beyond the Standard Model. Motivated by it, we explore the implications of this new result to five models based on the SU(3)C×SU(3)L×U(1)N gauge symmetry and put our conclusions into perspective with LHC bounds. We show that previous conclusions found in the context of such models change if there are more than one heavy particle running in the loop. Moreover, having in mind the projected precision aimed by the g-2 experiment at FERMILAB, we place lower mass bounds on the particles that contribute to muon anomalous magnetic moment assuming the anomaly is otherwise resolved. Lastly, we discuss how these models could accommodate such anomaly in agreement with current bounds.

Scheduling Preferences

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Author: Ms SÁNCHEZ VILLAMIZAR, Yoxara (nternational Institute of Physics (IIP) and Department of Theoretical and Experimental Physics- UFRN)

Co-authors: Mr SANTOS DE JESUS, Álvaro (International Institute of Physics); Prof. KOVALENKO, Sergey (Departamento de Ciencias Físicas Universidad Andres Bello); Prof. PIRES, C.A. de S (Departamento de Física, Universidade Federal da Paraíba); Prof. QUEIROZ, Farinaldo (International Institute of Physics)

Presenters: Ms SÁNCHEZ VILLAMIZAR, Yoxara (nternational Institute of Physics (IIP) and Department of Theoretical and Experimental Physics- UFRN); Mr SANTOS DE JESUS, Álvaro (International Institute of Physics); Prof. KOVALENKO, Sergey (Departamento de Ciencias Físicas Universidad Andres Bello); Prof. PIRES, C.A. de S (Departamento de Física, Universidade Federal da Paraíba); Prof. QUEIROZ, Farinaldo (International Institute of Physics)