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WITHDRAWN - Muon $g-2$ in an Alternative Quasi-Yukawa Unification with Low Fine-Tuned Inverse SeeSaw Mechanism

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We explore the low scale implications of the Pati-Salam Model including the TeV scale right-handed neutrinos interacting and mixing with the MSSM fields through the inverse seesaw (IS) mechanism, in light of the muon $g - 2$ resolution and highlight the solutions which are compatible with the Quasi-Yukawa Unification condition (QYU). We found that the presence of the right-handed neutrinos cause the smuons are rather heavy as $m_{\tilde{\mu}} > 800$ GeV in order to avoid tachyonic status at the low scale. On the other hand, the sneutrinos can be as light as about 100 GeV along with the light charginos of mass < 400 GeV can yield so large contributions to muon anomalous magnetic moment (muon $g - 2$) that the discrepancy between the experiment and the theory can be resolved. In addition, the model predicts relatively light Higgsinos ($\mu < 700$ GeV); and hence the second chargino mass is also light enough (< 700 GeV) to contribute to muon $g - 2$. Light Higgsinos also yield less fine-tuning at the electroweak scale, and the regions compatible with the muon $g - 2$ restricts $\Delta_{EW} < 100$ strictly, and this region is also compatible with QYU. In addition, the ratios among the Yukawa couplings should be as $1.8 < y_t/y_b < 2.6$, $y_\tau/y_b \sim 1.3$ to yield correct fermion masses. In addition, even though the right-handed neutrino Yukawa coupling can be varied freely, the solutions restrict its range as $0.8 < y_\nu/y_b < 1.7$.

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