First ECFA WORKSHOP.

Contribution ID: **34** Type: **Parallel session talk**

(g-2)_mu and SUSY: ILC and CLIC Physics Opportunities

Wednesday 5 October 2022 16:25 (20 minutes)

The electroweak (EW) sector of the Minimal Supersymmetric Standard Model (MSSM) can account for a variety of experimental data. The lightest SUSY particle (LSP), the lightest neutralino, is a perfect Dark Matter (DM) candidate. The EW spectrum can easily explain the discrepancy between the experimental value of the anomalous magnetic moment of the muon, $(g-2)_\mu$, and its SM prediction. Taking these constraints as well as LHC searches into account, we derive upper limits on the lighter part of the MSSM spectrum of ≤ 650 GeV. We discuss how this parameter space can be tested at the ILC and CLIC, as well as the complementarity with DM direct detection experiments.

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Session Classification: WG 1 - Global

Track Classification: WG1-GLOB - Physics Potential: Global interpretations