

Dark Matter Search in the Muon $g-2$ Experiment at Fermilab

Wednesday, 18 September 2024 12:30 (20 minutes)

Dark Matter (DM) is one of the most interesting research topics in physics. Many particle physicists are trying to identify it because we know that dark matter is likely to be a major component of a complete fundamental description of nature. The Muon $g-2$ Experiment at Fermilab measures the anomalous precession frequency of the muon. Oscillations of this precession frequency could be produced by DM coupling to muons. This talk will describe how we could observe DM signals in the Muon $g-2$ data. I will describe the analysis strategies throughout the DM mass range and explain how we determine the sensitivity. Finally, I will show laboratory limits for the DM coupling constant with muons in selected DM model-dependent scenarios.

Working Group

WG 4: Muon Physics

Primary author: YU, Byungchul (University of Mississippi)

Co-authors: QUINN, Breese (University of Mississippi); KIM, On (University of Mississippi); MITRA, Baisakhi (Fermi lab(University of Mississippi Graduate Student))

Presenter: YU, Byungchul (University of Mississippi)

Session Classification: Parallel: WG4

Track Classification: WG4: Muon Physics