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Status of the MilliQan Experiment during Run 3

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The MilliQan experiment is an ongoing search for millicharged particles (mCPs), which arise naturally in many Dark Sector models which offer potential Dark Matter candidates. The experiment is located just above the CMS experiment at the LHC and leverages this proximity along shielding from most standard model backgrounds to gain sensitivity to mCPs in the mass range of 0.01 - 45 GeV, while having sensitivity to charges as low as 0.003e. Two detector designs have been implemented to achieve this wide range of sensitivity, one detector featuring long scintillating bars for low charge/mass points, and the other utilizing wide scintillating slabs for high mass and high charge.

The bar detector has taken data for about two years, corresponding to more than 140 fb^{-1} of recorded luminosity. Over the summer of 2024 the slab detector was fully assembled and commissioning has been ongoing. Measurements of beam muons produced at the CMS interaction point with the slab detector have been made and compared with cosmic ray showers for validation.

The current status of the experiment will be presented, including a look at 2024 bar detector data. In addition, recent commissioning results of the slab detector will be discussed in relation to the slab detector's early data taken in 2025.

Secondary track

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