

# SUB-Millicharge Experiment (SUBMET) at J-PARC

*Thursday 18 July 2024 15:38 (17 minutes)*

SUB-Millicharge Experiment (SUBMET) searches for sub-millicharged particles from the proton fixed-target collisions at J-PARC. The detector, installed 280 m from the target, is composed of two layers of stacked scintillator bars and PMTs. The main background is expected to be a random coincidence between the two layers due to dark counts in PMTs and the radiation from the surrounding materials, which can be reduced significantly using the timing of the proton beam. With  $N_{\text{POT}} = 5 \times 10^{21}$ , the experiment provides sensitivity to  $\chi$ s with the charge down to  $8 \times 10^{-5}$  in  $\chi < 0.2 \text{ GeV}/c^2$  and  $10^{-3}$  in  $\chi > 1.6 \text{ GeV}/c^2$ . This is the regime largely uncovered by the previous experiments. This talk will address the assembly, construction, and installation of the detector as well as the future outlook of the experiment

## Alternate track

1. Dark Matter Detection

## I read the instructions above

Yes

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**Session Classification:** Detectors for Future Facilities, R&D, Novel Techniques

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