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MWPC R&D for background reduction in DRIFT

Radon Progeny Recoils (RPRs) have been identified as a major source of background emanating from the vessel in DRIFT dark matter experiment. We present our R&D work towards developing a new data acquisition system with low radon prone materials at reduced cost for the new generations of the detector, DRIFT IIe and DRIFT III due for installation by June 2014 and 2020 respectively. A low radon multiplexing board (MUXB) capable of combining 20 channels of signals to a single channel with high precision at 20 MHz is presented. Plans to optimise the performance of the MUXB with signals from our card edge MWPC whose 20 μm anode wires are placed in-between 50 μm grid wires were also discussed. Other special conditions considered while designing the MWPC to improve on its performance compared to what is used in DRIFT IIId were also included. Future plans of the research were also reviewed.

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