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Study of a Large Prototype TPC using Micro-Pattern Gas Detector Readouts

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During the last decade, detector R&D for the future International Linear Collider (ILC) has been performed by the community. The International Large Detector (ILD) is one detector concept at the ILC where calorimetry and tracking systems are combined. The tracking system consists of a Si vertex detector and forward tracking disks, as well as a large volume Time Projection Chamber (TPC). Within the framework of the LCTPC collaboration, a Large Prototype (LP) TPC has been built as a demonstrator. Its endplate is able to contain up to seven identical modules of Micro-Pattern Gas Detectors (MPGD). Recently, the LP has been equipped with resistive anode Micromegas (MM). A team from Canada participates in the deployment and study of the MM technology with a 5 GeV electron beam in a 1 Tesla magnet at DESY. After introducing the LP, the current status, recent results (drift velocity, field distortions and spatial resolution measurements) as well as future plans of the MM readout will be presented.

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