

Abstract Submitted  
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**Development of mRPCs Using 3D Printed Resistive Plate Stacks**

JUN HUI SEE TOH, None — ePHENIX will be an experiment at the future Electron-Ion Collider (EIC) to study nucleon spin structure and nuclear effects in nucleon structure. The spin dependent quark-flavor structure of the proton will be studied through semi-inclusive deep inelastic scattering with identified hadrons. These measurements will require superior particle identification capabilities. The EIC group at UIUC aims to develop multi-gap resistive plate chambers (mRPCs) with 10 ps timing resolution for a Time-of-Flight (TOF) detector at EIC. To create a cost efficient detector, mRPCs using 3D printed resistive plate stacks have been constructed and are being evaluated. An mRPC prototype consisting of two stacks of 5 layers of 300  $\mu\text{m}$  gas gaps had been printed using stereolithographic technique. The printed stacks were then sandwiched between printed circuit board plates, which contain pickup electrodes for signal readout and will be connected to high voltage. The presentation will discuss details of the construction of the 3D printed mRPC prototype and will provide first results on efficiency and timing resolution.

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None

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