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Forward and backward tracking at the EIC using small strip Thin Gap Chamber detectors

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We propose to develop a concept for forward and backward tracking detectors near the collision vertex at pseudo-rapidity $1 < |\eta| < 3.5$ using small strip Thin Gap Chamber (sTGC) technology. This represents an attractive option for building a tracking device as they have minimum material budget, are easy to construct, and most-importantly, are cost effective. We aim on the detection of all charged hadrons and will study performance parameters such as tracking efficiency and momentum resolution. As part of our proposal, a prototype sTGC was constructed at Shandong University in China. The prototype sTGC detector will be installed at the Solenoidal Tracker at RHIC (STAR) experiment, and tested in the 2019 and 2020 runs. In this talk, I will report the prototype performances from cosmic ray test. The implications of the sTGC detector for tracking at the EIC will be discussed.

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