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Studies for a Micro Vertex System in a EIC Detector using Monolithic Active Pixel Sensors[1] BENEDETTO DI RUZZA, Brookhaven National Laboratory — More than thirty years after Quantum Chromo-Dynamics (QCD) was first proposed as the fundamental theory of the strong force, very little is still known about the dynamical basis of the hadron structure. We still don't know completely where fundamental quantities of the nucleons like spin came from or what is the space distribution of gluons in nucleons. To investigate these fundamental questions a new Electron Proton/Ion Collider (eRHIC) is proposed to be built at Brookhaven National Laboratory. The inner tracking system of the detector in this collider will require very high granularity, very low material budget, hermetic coverage and a radiation hard design. For this detector it will be crucial to identify tracks of charged low momentum leptons at high rapidities. In this talk, an overview will be given on the eRHIC collider project at BNL, on the present design of the eRHIC detector. Further it will be shown that Monolithic Active Pixel Sensor (MAPS) realized with CMOS technology satisfy all these requirements and first test results of these sensors will be provided.

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