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MAPS-based tracking and vertexing for the Electron-Ion Collider

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Experiments at the future Electron-Ion Collider (EIC) pose stringent requirements on the tracking system for the measurement of the scattered electron and charged particles produced in the collision, as well as the position of the collision point and any decay vertices of hadrons containing heavy quarks. Monolithic Active Pixel Sensors (MAPS) offer the possibility of high granularity in combination with low power consumption and low mass, making them ideally suited for the inner tracker of the EIC detector(s). In this talk, we will discuss the configuration optimized for the ATHENA detector, selected physics performance metrics, and associated R&D towards a well-integrated, large-acceptance, precision tracking and vertexing solution for the EIC based on a new generation MAPS sensors in 65 nm CMOS imaging technology.

Collaboration

ATHENA Collaboration and EIC Silicon Consortium

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