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Tracking for the STAR Forward Upgrade

The STAR Collaboration is constructing a forward rapidity ($2.5 < \eta < 4$) upgrade that will include charged particle tracking and electromagnetic/hadronic calorimetry. Charge particle tracking capabilities are achieved via a combination of silicon detectors and small strip thin gap chamber detectors. Combining these detector types to achive tracking in the STAR forward region poses unique challenges since charged particles in the forward region traverse a non-uniform magnetic field. A novel tracking framework has been developed to harness the full potential of the forward tracking detectors. This tracking framework combines cellular automata for track seed finding and iterative track fitting implemented with the GenFit2 tracking library. The design and implementation of the tracking system will be discussed and performance estimates from simulations will be presented.

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