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Overview of the Inner Silicon detector alignment procedure and techniques in the RHIC/STAR experiment

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The STAR experiment was primarily designed to detect signals of a possible phase transition in nuclear matter. Its layout, typical for a collider experiment, contains a large Time Projection Chamber (TPC) in a Solenoid Magnet, a set of four layers of combined silicon strip and silicon drift detectors for secondary vertex reconstruction plus other detectors. In this presentation, we will report on recent global and individual detector element alignment as well as drift velocity calibration work performed on this STAR inner silicon tracking system. We will show how attention to details positively impacts the Physics capabilities of STAR and explain the iterative procedure conducted to reach such result in low, medium and high track density / detector occupancy.

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