Optimizing Time-of-Flight Calculations to Identify Particles in p+p and p+A Collisions with the STAR Detector

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The Soleniodal Tracker at RHIC (STAR) at Brookhaven National Laboratory uses multiple techniques for particle identification. The time-of-flight (TOF) detector is one of the tools available, which provides high efficiency particle identification in A+A collisions. However, its capabilities are significantly reduced in p+p and p+A collisions because the existing analysis procedures are not optimized for high collision rates with low event multiplicities. In this presentation, we will discuss revised algorithms that provide significant improvements in both efficiency and resolution when using TOF in p+p and p+A systems. We will also share results from using these optimized algorithms in p+p and p+A data collected by STAR in 2015.