

Abstract Submitted  
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**Transverse Spin Dependent Azimuthal Correlations of Charged Pion Pairs in  $p^\uparrow + p$  Collisions at  $\sqrt{s} = 200$  GeV<sup>1</sup>** BABU POKHREL, Temple Univ, STAR COLLABORATION — The transversity distribution function,  $h_1^q(x)$ , a leading twist parton density which describes the distributions of transversely polarized quarks inside transversely polarized hadrons, is a fundamental component of the spin structure of the nucleon, and is loosely constrained by global fits. Being chiral odd,  $h_1^q$  can be accessed only when it is coupled with another chiral-odd partner, such as transverse spin-dependent fragmentation function. This gives rise to the azimuthal correlation between the polarization of the struck quarks and the final state scalar mesons, called transverse single-spin asymmetry (TSSA), that directly measures quark transversity distribution. The STAR experiment at RHIC has previously measured TSSA using polarized proton-proton collision data from 2006 at  $\sqrt{s} = 200$  GeV and 2011 at  $\sqrt{s} = 500$  GeV. Both measurements reported nonzero asymmetries which are sensitive to  $h_1^q$ . We will present an update on the recent TSSA analysis using data from 2015 polarized proton-proton collisions at  $\sqrt{s} = 200$  GeV,  $\sim 30$  times larger sample than that from 2006, in the mid pseudorapidity region ( $|\eta| < 1$ ) for exclusive charged pion pairs ( $\pi^+\pi^-$ ) in the final state.

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