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**Longitudinal Double-Spin Asymmetry for Inclusive and Di-Jet Production in Polarized Proton-Proton Collisions at $\sqrt{s}$ = 200 GeV**[1] NICHOLAS LUKOW, Temple Univ, STAR COLLABORATION — The contribution of the gluon helicity to the spin of the proton is being studied utilizing the unique capability of the Relativistic Heavy Ion Collider (RHIC) to collide polarized protons at varying energies. The kinematic coverage of the Solenoidal Tracker At RHIC (STAR) allows access to gluons through gluon-gluon and quark-gluon scattering processes which dominate jet production at low and intermediate transverse momenta. The polarized gluon distribution function, $\Delta g(x)$, can be constrained through a global analysis including measurements of the longitudinal double-spin asymmetries ($A_{LL}$) of inclusive jet and di-jet production. Inclusive jet $A_{LL}$ results published by STAR at mid-rapidity ($|\eta| < 1$ ) at $\sqrt{s} = 200\,\text{GeV}$ have been used in global analyses and show a non-zero truncated first moment of $\Delta g(x)$ for momentum fraction, $x$, greater than 0.05. An additional data sample of $43\,\text{pb}^{-1}$ has been collected in 2015 at the same collision energy. This new data sample is over twice as large as the previous sample and will improve the precision of $\Delta g(x)$ for $x > 0.05$. The latest results from the analysis of the 2015 data will be presented.

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