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Open charm hadron reconstruction via hadronic decays in p+p collisions at $\sqrt{s} = 200$ GeV YIFEI ZHANG, Lawrence Berkeley National Lab, STAR COLLABORATION — Heavy quarks are believed to be an ideal probe to study the properties of the QCD medium produced in the relativistic heavy ion collisions. Heavy quark production in elementary particle collisions is expected to be well calculated in the perturbative QCD. Precise understanding on both the charm production total cross section and the fragmentation in p+p collisions is a baseline to further investigation of the QCD medium via open charm and charmonium in heavy ion collisions. Early RHIC measurements in p+p collisions which were carried out via semi-leptonic decay electrons provides difficulty in directly relating the kinematics of the electron to that of the heavy quark hadron, the limited momentum coverage and the mixed contribution from various charm and bottom hadrons in the electron approach. In this talk, we will present the reconstruction of open charm hadrons (D^0 and D^*) via the hadronic decays in p+p collisions at $\sqrt{s} = 200$ GeV in the STAR experiment. The analysis is based on the large p+p minimum bias sample collected in RHIC in the year 2009. The Time-Of-Flight detector, which covered 72% of the whole barrel, was used to improve the decay daughter identification. Physics implications from this analysis will be presented.

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