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Status and prospects of the STAR W boson spin physics program at RHIC BERND SURROW, MIT, STAR COLLABORATION — The STAR Collaboration has recently completed the first data taking period in 2009 (Run 9) of polarized p+p collisions at $\sqrt{s} = 500\,\mathrm{GeV}$. This opens a new era in the study of the spin-flavor structure of the proton based on the production of $W^{-(+)}$ bosons. $W^{-(+)}$ bosons are produced at leading order in $\bar{u} + d\,(\bar{d} + u)$ collisions and can be detected through their leptonic decays, $e^- + \bar{\nu}_e\,(e^+ + \nu_e)$, where only the respective charged lepton is measured. The discrimination of $\bar{u} + d(\bar{d} + u)$ quark combinations requires distinguishing between high p_T $e^{-(+)}$ through their opposite charge sign, which in turn requires precise tracking information. At mid rapidity, STAR will rely at first on the existing Time Projection Chamber augmented in the future by high precision silicon detectors close to the interaction region. At forward rapidity, new tracking capabilities will be provided by the Forward GEM Tracker, consisting of six triple-GEM detectors currently under construction. A brief overview will be provided on recent results on the production of W bosons during the first data taking period in 2009 (Run 9) of polarized p+p collisions at $\sqrt{s} = 500\,\mathrm{GeV}$. The main emphasis will be placed on future projections of the STAR W spin program at mid-rapidity and forward rapidity including a discussion of the STAR Forward GEM Tracker project.

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