

# Present and Future of Central Production With STAR Detector at RHIC

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The present status and future of the physics program of Central Production using the STAR detector at RHIC will be described. The program focuses on particle production resulting from the Double Pomeron Exchange (DPE) process. Forward protons from the DPE interaction are detected in the Roman Pot system installed at 55.5 m and 58.5 m on both sides of the STAR interaction point. The recoil system of charged particles from the DPE process is measured in the STAR Time Projection Chamber (TPC). The first data were taken during the 2009 RHIC Run 9 using polarized proton-proton collisions at  $\sqrt{s} = 200\text{GeV}$ . The preliminary spectra of two pion and four pion invariant mass reconstructed by STAR TPC in central region of pseudo-rapidity  $|\eta| < 1$ , will be presented. Plans to take data with the current system at  $\sqrt{s} = 500\text{GeV}$  and plans to upgrade the forward proton tagging system, so that it can reach higher masses and obtain large data samples in searching for glueballs that could be produced in the DPE process, will also be discussed.

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