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Physics capability with silicon vertex tracker at RHIC PHENIX experiment MAKI KUROSAWA, RIKEN, PHENIX COLLABORATION — PHENIX is an experiment aiming to study the spin structure of proton and hot and dense matter at Brookhaven National Laboratory's Relativistic Heavy Ion Collider. The PHENIX detector will be upgraded with a silicon vertex tracker (VTX) to enhance it's physics capabilities for spin and heavy ion program. The VTX comprised of a four-layer barrel detector, two inner silicon pixel detectors and two outer silicon strip detectors. The main roles of the VTX are precision measurement of heavy flavor and precision jet reconstruction with it's large acceptance. In spin program, the VTX can determine x dependency of gluon polarization Delta-G/G through heavy flavor and gamma-jet correlation measurements. In heavy ion program, heavy flavor measurement provides further information on property of QGP in addition that from light flavor. This presentation provides overview of VTX upgrade and enhanced physics as well as current status of pixel detector.

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