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Abstract for an Invited Paper for the APR05 Meeting of the American Physical Society

## The Relativistic Heavy-Ion Collider: Present Performance and Future Capabilities $^1$ THOMAS ROSER, BNL

As the first hadron accelerator and collider consisting of two independent superconducting rings RHIC has operated with a wide range of beam energies and particle species. Machine operation and performance will be reviewed that includes high luminosity gold-on-gold and copper-on-copper collisions at design beam energy (100 GeV/u), asymmetric deuteron-on-gold collisions as well as high energy polarized proton-proton collisions (100 GeV on 100 GeV). Future operation with polarized protons at 500 GeV center-of-mass energy as well as plans for luminosity upgrades and the addition of high luminosity collisions with a 10 GeV electron beam will also be discussed.

<sup>1</sup>Work performed under the auspices of the U.S. Department of Energy