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PHENIX overview

Thursday 28 September 2017 09:00 (45 minutes)

The PHENIX experiment at the relativistic heavy ion collider RHIC has been taking data related to the study of the quark-gluon plasma and the spin structure of the nucleon. For the spin structure measurements we have shown that the gluon spin contribution to the total spin of the nucleon is substantial at intermediate x and several ongoing measurements at forward rapidities access even lower x.
Single longitudinal spin asymmetries in real W production access the spin of sea quarks in the nucleon. These measurements indicate that the light quark sea is polarized and asymmetric.
For transverse spin effects there have been many surprises such as the large single spin asymmetries for hadrons at forward rapidities as well as the nuclear dependence of neutron asymmetries at zero degrees. The origins of these effects is being investigated in more detail.
Also the possibility of nonlinear effects at high gluon densities is investigated in the forward region.
The recent results and the status of the ongoing measurements related to these topics will be presented. Also an outlook of measurements with future upgrades will be presented.

Relevant topics

Spin structure of the nucleon; low x

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