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Polarizing Helium-3 for down quark spin enrichment

Wednesday, 12 September 2012 20:00 (15 minutes)

Summary

The successful acceleration of unpolarized Helium-3 nuclei by the AGS at BNL heralds the possibility of achieving polarized He-3 ions at the AGS and RHIC. Assessing the level of polarization will be a challenge at high energy as the inelastic channels associated with He-3 scattering off a carbon target in the electromagnetic hadronic interference region may dilute expectations by comparison with the successful use of this method for proton polarimetry. The large anomalous magnetic moment of He-3 is helpful however, though the greater hadronic elastic cross section reduces the optimal analyzing power. Encouragement may be drawn from measurements indicating little high energy spin …

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