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Dihadron beam spin asymmetries from SIDIS with proton and deuteron targets at CLAS12

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Correlators such as parton distribution functions (PDFs) exhibit flavor dependence, which is accessible from complementary Semi-Inclusive Deep Inelastic Scattering (SIDIS) measurements with proton and neutron targets. SIDIS off the neutron can be explored using nuclear targets, in particular the deuteron, wherein the quark flavor combination differs from that of the proton. Recent $\pi^+\pi^-$ dihadron beam spin asymmetry measurements allow for a point-by-point extraction of the collinear twist-3 PDF $e(x)$, which gives further insight into quark and gluon interactions. These measurements were performed with a proton target, but complementary measurements with a neutron target are necessary for disentangling the flavor dependence of $e(x)$. The presented study offers a first look at a comparison of $\pi^+\pi^-$ beam spin asymmetries from proton and deuteron targets at CLAS12.

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