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Dihadron beam spin asymmetries and partial waves from CLAS12, with sensitivity to $G_1^\perp$ CHRISTOPHER DILKS, Duke University, CLAS COLLABORATION — Dihadron beam spin asymmetries present powerful probes of nucleon structure and hadronization, in particular, spin-momentum correlations in hadronization. Recent preliminary measurements at CLAS12 provide the first empirical evidence of a nonzero $G_1^\perp$, the parton helicity-dependent dihadron fragmentation function (DiFF), which encodes spin-momentum correlations in hadronization. A sign change is observed, with different behavior above and below the ρ resonance. Moreover, the dihadron production cross section expands in partial waves, each containing a DiFF corresponding to the interference of dihadrons of particular polarizations; it turns out that $G_1^\perp$ needs the interference with a dihadron in a p-wave or higher order, that is, a dihadron with a nonzero angular momentum. Asymmetry amplitudes for each partial wave can be measured using a simultaneous fitting technique. This presentation focuses on updates to dihadron beam spin asymmetries at CLAS12, from 10.6 GeV electrons scattering on a proton target, along with prospects for learning more about nucleon structure and hadronization.

Christopher Dilks
Duke University

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