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First extraction of transversity from electron-proton and proton-proton data

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We present the first extraction of the transversity distribution in the framework of collinear factorization based on the global analysis of pion-pair production in deep-inelastic scattering off transversely polarized targets and in proton-proton collisions with one transversely polarized proton. The extraction relies on the knowledge of dihadron fragmentation functions, which are taken from the analysis of electron-positron annihilation data. For the first time, the chiral-odd transversity is extracted from a global analysis similar to what is usually done for the chiral-even spin averaged and helicity distributions. The knowledge of transversity is important for detecting possible signals of new physics in high-precision low-energy experiments.

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