

Abstract Submitted
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Polarization of Hyperons in Elementary Photoproduction REINHARD SCHUMACHER, Carnegie Mellon University — Recent measurements using the CLAS detector at Jefferson Lab of the reactions $\vec{\gamma} + p \rightarrow K^+ + \vec{\Lambda}$ and $\vec{\gamma} + p \rightarrow K^+ + \vec{\Sigma}^0$ have determined the spin transfer coefficients C_x and C_z for the first time. These observables quantify photon circular polarization that is transferred to the recoiling hyperons in the scattering plane. The unexpected result is that Λ hyperons are produced “100% polarized”, as seen when combining C_x and C_z with the previously-measured induced transverse polarization, P . Furthermore, C_x and C_z seem to be linearly related. We present the experimental results and offer a hypothesis which can explain these observations: the produced strange quark, when subjected to a pure spin-orbit type of interaction, preserves its state of polarization throughout the hadronization process. This hypothesis suggests that quark dynamics are relevant to the formation of hadrons even in the “nucleon resonance” region of excitation.

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