Hadronization dynamics of Λ^0 baryon

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One of the most challenging studies in hadronic physics over the last few decades is to understand the interaction and formation of hadrons in terms of the quarks and gluons degrees of freedom. The nature of their confinement dynamics can be explored using measurements of hadron production on nuclear targets in semi-inclusive deep-inelastic scattering (SIDIS) of leptons. The reaction is a unique tool for understanding the hadronization process that leads from partons produced in the elementary interaction to hadrons observed experimentally. A new measurement, the JLab E02-104 experiment, was carried out in fall 2004 using a 4 π spectrometer, CLAS, to measure several hadrons produced in SIDIS from different nuclei (deuterium, carbon, iron and lead) at moderate momentum transfer, Q^2, values. Preliminary results of two fundamental observables, the hadronic multiplicity ratio R_M^h and the transverse momentum broadening $\Delta \mathrm{p}_T^2$, of one of the hadron species, Λ^0, will be highlighted in this presentation. This is the first time these observables have been measured for the Λ^0, adding new information that will be relevant to the study of baryon hadronization. All the compiled results from these high precision data will improve our understanding of the space-time evolution from quark propagation to hadronization at intermediate energy.