

# Isobar configurations in $^3\text{He}$ ground state

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Studying the short-distance structure, the probabilities of short-range correlations (SRC), and meson-exchange currents in nuclei are important subjects in experimental nuclear physics. These processes together with final-state interactions, contribute to the measured observables that are mostly being interpreted within strongly model-dependent picture.

The study of virtual nucleon excitations specifically isobar configurations in the nuclear ground state is an important part of this effort. Since the SRC are local high density spots, it is likely that the quark distributions of nucleons would make a transition to non-nucleonic configurations. A number of theoretical calculations predict the probability of finding one or more nucleons in an excited state. In some studies the isobar excitations have been explicitly included in the few-body problem.

Recent experiments at JLab provides an immense data set of photon scattering from nuclear targets. In this work we study various photoproduction channels that contain one or more  $\Delta$ -isobar using an incident photon-beam energy of 0.5-1.5 GeV on a  $^3\text{He}$  target. For example,  $\gamma^3\text{He} \rightarrow \Delta^{++}nn$  or  $\gamma^3\text{He} \rightarrow \Delta^{++}\Delta^0n$  reactions. Preliminary results will be shown.