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Baryon Structure and Spectroscopy at 6 and 12[1]

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Baryon spectroscopy can establish more completely and more sensitively, and in an almost model-independent way, nucleon excitations and non-resonant reaction amplitudes by complete measurements of pseudo-scalar meson photoproduction off nucleons. However, beyond baryon spectroscopy at the real photon point $Q^2 = 0\,(GeV/c)^2$, electron scattering experiments can also investigate the internal hadronic structure at various distance scales by tuning the four-momentum transfer from $Q^2 \approx 0\,(GeV/c)^2$, where the meson cloud contributes significantly to the baryon structure, over intermediate Q^2, where the three constituent-quark core starts to dominate, to Q^2 up to $12\,(GeV/c)^2$, attainable after the 12-GeV upgrade at JLab, where the constituent quark gets more and more undressed towards the bare current quark. After establishing unprecedented high-precision data, the immanent next challenge are high-quality analyses to extract the baryon spectrum and the relevant electrocoupling parameters for various well-known resonances that then can be compared to state-of-the-art models and QCD-based calculations. Recent results will demonstrate the status of the analysis and of theoretical descriptions.

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