The interaction of quarks and gluons in high-energy experiments is well described by Quantum Chromodynamics (QCD). However, it remains an open question why the quarks are always confined in nucleons and other hadrons. Also, why are the quarks only responsible for a tiny fraction of the mass of the nucleon and other hadrons? In short, why has matter the properties as we know them? Such fundamental questions are currently being addressed by dedicated experimental programs at Jefferson Lab and other facilities around the world.

These experiments are carried out at intermediate energies where the high-energy regime of QCD connects to the low-energy regime of stable matter. This is where we expect a key to the understanding of QCD. Here, QCD manifests itself in a rich and complex pattern of excited hadrons, called resonances. To extract resonance properties from experimental data and to connect them to theory is one of the most challenging goals of hadron physics. Related to this is the analysis of data from lattice QCD simulations, a rapidly evolving approach to resonance physics directly based on QCD.

In this talk, I will discuss how experimental and lattice data can be analyzed using modern theoretical tools. Coupled-channel unitarity, analyticity, and chiral constraints provide the guidelines to extract resonance properties in a controlled way.