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Experimental study of the strong interaction with the spectrometer ALERT and CLAS at JLab

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The ALERT experiment aims to advance our understanding of the nuclear structure in terms of quarks and gluons by precisely measuring the electroproduction of a real photon through the interaction with a nuclear target such as the Helium-4. This process referred as the Deeply Virtual Compton Scattering (DVCS) gives us access to the tomography of quarks inside the nucleus. The achievement of this experiment relies on the synergistic combination of the novel, low-energy ALERT recoil tagger with the CLAS12 spectrometer at Jefferson Lab. The Continuous Electron Beam Accelerator Facilities at Jefferson Lab can deliver 11 GeV spin polarized electron beam. ALERT is composed of a hyperbolic drift chamber for track reconstruction and an array of scintillators for particle identification. It is specifically designed to detect ^{4}He and recoil fragments (p, ^{2}H, ^{3}H, ^{3}He). CLAS12's large acceptance is ideal for the detection of scattered electrons and high energy photons.
After the success of the data taking, from April to September 2025, efforts are now mainly focused on the development of the reconstruction software and the calibration of the data.

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