

The KLong Facility in Hall D at Jefferson Lab

Tuesday 9 December 2025 15:30 (30 minutes)

The KLong Experiment in Jefferson Lab Hall D will use a secondary beam of neutral kaons and the GlueX experimental setup to perform strange hadron spectroscopy. By achieving a flux on the order of 1×10^4 K_L /sec, KLF will allow a broad range of measurements that improve the statistics of previous world data by several orders of magnitude.

The experiment will measure both differential cross sections and self-analysed polarisations of the produced Λ , Σ , Ξ and Ω hyperons spanning the mass range $W = 1490$ MeV to 2500 MeV. KLF data will significantly constrain partial wave analyses and reduce model-dependent uncertainties in the extraction of the properties and pole positions of the strange hyperon resonances, as well as establish the orbitally excited multiplets in the spectra of the Ξ and Ω hyperons. The proposed facility will also explore the strange meson sector through measurements of the final state $K\pi$ system up to 2 GeV invariant mass, and with the addition of nuclear emulsion detectors for high-resolution tracking, contribute to studies of hypernuclei.

This talk will give an overview of the KLong Facility design, current status, and prospects for its impact in strangeness spectroscopy.

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