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## **Flux Variability and Spectral Analysis of LS I +61 303 and HESS J0632+057 with VERITAS**

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This project focuses on the gamma-ray binaries LS I +61 303 and HESS J0632+057, analyzed with data from the VERITAS array during the DESY Summer School. The project aimed to investigate variability in flux and spectral parameters beyond orbital modulation and to search for extended emission possibly associated with a pulsar wind nebula. To achieve these aims, the project is structured in two main stages. The first stage involves generating 1000 Monte Carlo light curves and applying Lomb–Scargle periodograms to evaluate periodicity, establish confidence levels, and estimate period uncertainties through signal injection tests. In the second stage, spectral analysis is performed using the Gammapy framework, which includes criteria for target region definition and exclusion mask creation, background estimation, spectral fitting with power-law models, and evaluation of residuals. Together, these methods provide a framework for studying phase-dependent variability and spectral evolution in gamma-ray binaries.

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