

**DETECTION OF QUASI-PERIODIC OSCILLATIONS IN γ -RAY
AND OPTICAL LIGHT CURVES OF THE BL Lac 4FGL J0650.7+2503**

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In this work, we have assembled the long-term variability data of the blazar 4FGL J0650.7+2503 in the γ -ray and the optical bands, spanning about 11.9 and 8.6 yr, respectively. The light curves are then analyzed by using Lomb-Scargle Periodogram, Weighted Wavelet Z-transform, Jurkevich and discrete correlation function techniques, and the results reveal two possible timescales of quasi-periodic oscillation: 500 ± 37 days for γ -ray and 330 ± 20 days for optical. To explore the origin of the γ -ray, we investigated between the optical and γ -ray bands correlations, and found that the correlation between the two bands is very significant. This correlation can be reasonably explained by the lepton self-synchro-Compton model. Basing on the supermassive binary black hole system model, we estimate the primary black hole mass $M \sim 8.5 \times 10^8 M_{\odot}$.