

[CD-05] Constraining Cosmological Parameters with Gravitational Lensed Quasars in the Sloan Digital Sky Survey

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We investigate the constraints on the matter density Ω_m and the cosmological constant Ω_Λ using the gravitational lensed QSO (Quasi Stellar Object) systems from the Sloan Digital Sky Survey (SDSS) by analyzing the distribution of image separation. The main sample consists of 16 QSO lens systems with measured source and lens redshifts. We use a lensing probability that is simply defined by the gaussian distribution. We perform the curvature test and the constraints on the cosmological parameters as the statistical tests. The statistical tests have considered well-defined selection effects and adopt parameter of velocity dispersion function. We also applied the same analysis to Monte-Carlo generated mock gravitational lens samples to assess the accuracy and limit of our approach. As the results of these statistical tests, we find that only the excessively positively curved universe ($\Omega_m + \Omega_\Lambda > 1$) are rejected at 95% confidence level. However, if the informations of the galaxy as play a lens are measured accurately, we confirm that the gravitational lensing statistics would be the most powerful tool.
