THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
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Measurement of the Baryon Acoustic Oscillations with Projected Three-dimensional Correlation Function

by

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ALL INTERESTED ARE WELCOME
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Abstract

We develop a new statistic, the projected three-dimensional correlation function, for the clustering analysis of the imaging galaxy survey data. This method can retain some of the radial information that is lost in conventional tomographic angular correlation analysis. As it is not strongly correlated with the angular correlation results, it can also provide important crosscheck. We have applied our methodology to the Dark Energy Survey first-three years data to measure the Baryonic Acoustic Oscillations. The sample consists of about 7 million galaxies in the redshift range $0.6 < z_p < 1.1$ over a footprint of 4108 deg^2. Using the full sample, D_M / r_s is constrained to be 19.15 ± 0.58 at $z_{\rm eff} = 0.835$. This constraint is consistent with the angular correlation function result.

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