

Relativistic asymmetry in galaxy-galaxy and galaxy-ellipticity correlations

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The observed galaxy distribution via galaxy redshift surveys appears distorted due to redshift-space distortions (RSD). One dominant contribution to RSD comes from the Doppler effect induced by the peculiar velocity of galaxies. The Doppler effect produces the even multipole anisotropy in the correlation function and it has been well studied in a few decades. I will present my recent work on the asymmetric galaxy clustering (odd multipoles). As the asymmetric distortions arises from the other relativistic effects than the standard Doppler effect, it contains qualitatively different cosmological information from the even multipoles. I will show that one can use the asymmetric distortions as a probe of the gravitational redshift effect, leading to a new probe of gravity theory.

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