

[구GC-03] Coherent Combination of Baryon Acoustic Oscillation Statistics and Peculiar Velocity Measurements from Redshift Survey

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New statistical method is proposed to coherently combine Baryon Acoustic Oscillation statistics (BAO) and peculiar velocity measurements exploiting decomposed density--density and velocity--velocity spectra in real space from the observed redshift distortions in redshift space, 1) to achieve stronger dark energy constraints, $\sigma(w)=0.06$ and $\sigma(w_a)=0.20$, which are enhanced from BAO or velocity measurements alone, and 2) to cross--check consistency of dark energy constraints from two different approaches: BAO as geometrical measurements and peculiar velocity as large scale structure formation observables.

[구GC-04] 2D genus topology of 21-cm differential brightness temperature during cosmic reionization

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Planck is already in active operation, and in a few years a detailed CMB anisotropy map will be compiled, surpassing WMAP both in temperature and polarization. The E mode - E mode autocorrelation power spectrum at large scales contains weak but sizable information on the history of cosmic reionization. We show our latest advance of our own simulation of cosmic reionization that incorporates Pop III stars, and provide a forecast for Planck polarization measurement.