

[S09-3] Power Spectrum of Cosmic Momentum Field
Measured from the ENEAR Galaxy Sample

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We have measured the cosmic density and momentum power spectra from the peculiar velocities of galaxies in the ENEAR sample. The ENEAR catalog is an early-type galaxy sample which contains about 700 radial peculiar velocities obtained from the $D_n - \sigma$ relation. From the measured power spectra, we have estimated $\beta = \Omega_m^{0.6}/b$ parameter where Ω_m is the matter density parameter and b is the bias factor for optical galaxies. By making the measured and the derived momentum powers equal with each other, at each wavenumber k we estimate $\beta(k)$ over a wide range of scales that spans the linear to the quasi-linear regimes. We have also compared the β parameter and the amplitude of mass fluctuation obtained from the ENEAR sample with those from the SFI spiral galaxy sample. Our analysis method can be applied to the early-type galaxies and clusters of the Sloan Digital Sky Survey (SDSS).

[S09-4] Formation of the Early Type Galaxies
in Nearby Galaxy Clusters

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We investigated the color magnitude relation, ages, and metallicities of the early type galaxies in nearby galaxy clusters, using the photometric and spectroscopic data of Sloan Digital Sky Survey (SDSS). We have also used Lick indices calculated from $H\beta$, Mgb, Fe5270, and Fe5335 lines to estimate relative ages and metallicities assuming a simple stellar population (SSP) model of Thomas et al. (2003) which has considered alpha-element enhancement. In each galaxy cluster, the age and metallicity spread of early type galaxies is found to be rather large. It implies that galaxies were not formed simultaneously in each galaxy cluster. From these result, we discuss the formation scenario of the early type galaxies in galaxy cluster.