

U16a **Covariance Matrix for Baryon Acoustic Oscillation from Numerical Simulations**

高橋龍一、吉田直紀、松原隆彦、杉山直 (名古屋大)、加用一者、高田昌広 (IPMU)、西道啓博、樽家篤史、斎藤俊、須藤靖 (東京大)

We perform cosmological N-body simulations to generate a large number of mock catalogues for WFMOS surveys of BAO. We run a lot of realizations to measure the covariance matrix of the non-linear power spectrum. The precise covariance matrix is crucially important for the likelihood analysis (such as χ^2 analysis and Fisher matrix). We calculate the covariance matrix in both real and redshift space and compare it with the theoretical predictions of the perturbation theory and the halo model. Our result coincides with the theoretical prediction for higher redshift and/or larger scale. The covariance matrix consists of two terms, the Gaussian and the non-Gaussian terms. It turns out that the non-Gaussian contribution becomes important for $k > 0.2h/\text{Mpc}$ for the signal-to-noise ratio.