

The Extremely Wide-Field gzK Galaxy Survey

Shogo Ishikawa^{1,2}, Nobunari Kashikawa^{1,2}, Takashi Hamana², Jun Toshikawa^{1,2},
and Onoue Masafusa^{1,2}

¹ *The Graduate University for Advanced Studies*

² *National Astronomical Observatory of Japan*

Abstract

We present the clustering properties of star-forming galaxies at $z \sim 2$ and discuss the dark halo masses and their evolution from the accurate clustering analysis. By applying the gzK selection method over 5 deg^2 based upon the Subaru and CFHT/UKIRT public archival data, we obtained a large sample of 41,112 star-forming galaxies (sgzKs) at $z \sim 2$ down to $K < 23.0$. We obtained high-quality two-point angular correlation functions (ACFs) and found that clustering strength depends upon a galaxy luminosity, which is consistent with previous studies. Our ACFs show an apparent excess from the power-law at small angular scale, enabling more detailed estimation of dark halo mass by the HOD analysis, which is formulated by 1-halo term and 2-halo term. We derived the stellar-to-halo mass ratio (SHMR), which indicates that star-formation efficiency at $z \sim 2$ drops in massive dark halo compared with the local Universe. Moreover, We discuss the relation between sgzKs and local SDSS galaxies and Lyman break galaxies at $z \sim 4$ by tracing the evolution of the dark halo.