

## **Velocity and mass functions of cosmic structures**

Hiroya R.Yoshida<sup>1</sup>, Tsutomu T.Takeuchi<sup>1</sup>

<sup>1</sup> *Nagoya University*

### **Abstract**

It is important to study the relation between the structures consisting of galaxies and dark matter, but it has been a matter of long debate. In order to investigate especially the dynamical aspect of the structure, we use the data provided by the VIMOS Public Extragalactic Redshift Survey (VIPERS) and its mock catalog constructed from N-body simulations. First, we derive galaxy stellar mass using the photometric data and SED fitting and we estimate galaxy stellar mass function at  $z = 0.5$  to  $z = 1.3$ .

Together with this, we also estimate galaxy's line of sight velocity using spectroscopic data and dynamically estimated the velocity dispersion function of clusters. This method was checked by using the mock catalog. Combining these results, we can discuss the relation between dark and luminous structures. In this presentation, we report these results.