Approximate layout for Scientific papers

Your Name here

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1 Introduction

Something that sets the framework of your work, i.e., why the results in the paper are important/relevant (Knuth , 1992). We will discuss the methods in Section 2, the results in Section 3 and discuss the implications in Section 5.

2 Methods

How you gathered/analyzed the data. We fit the extracted halo number densities using a Schechter function (Press & Schechter, 1974):

$$\frac{dN}{d\ln M} \propto \left(\frac{M}{M_{\star}}\right)^{\alpha} \exp\left(-\frac{M}{M_{\star}}\right) \tag{1}$$

where, $\frac{dN}{d\ln M}$ in the halo number density per unit logarithmic mass, M is the mass of the halo, M_{\star} is a characteristic halo mass, and α is a free parameter.

3 Results

Using Eqn. 1, we found the typical values of α to be $\sim 3 - 4$. Such a mass function implies that the 'average' halo is going to be low mass, where the average halo mass is given by:

$$\langle M \rangle = \int_0^\infty M \frac{dN}{dM} dM \tag{2}$$

4 Comparison to Previous Work

How do your results fit in the with the broad picture

5 Discussion

What are the implications of your results

References

Knuth, D. E. 1992, Amer. Math. Monthly, 99, 403

Press, W. H., & Schechter, P. 1974, ApJ, 187, 425.