



# Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali / Thesis & Dissertation / Master of Science / MS-17

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/4170>

Title:	Mass Fuction of Collapsed Halos and the Excursion Set
Authors:	<a href="#">Liya, Devang Haresh</a>
Keywords:	Excursion Collapsed Halos Mass Fuction
Issue Date:	Apr-2022
Publisher:	IISER Mohali
Abstract:	<p>In the current model of the structure formation in the universe, the initial density fluctu- ations in the universe got enhanced due to the expansion. Eventually, the regions with density contrast greater than a threshold collapsed to for the first gravitationally bound ob- jects called dark matter halos. These halos then evolved by accrete more mass and merging with other halos. They also provided the potential wells for the ordinary matter to collapse into and form structures such as galaxies. Therefore, understanding the dark matter halos and their distribution in the universe is one of the most important problems in cosmology. In this thesis, we have reviewed the properties of the dark matter halos, methods to study them, and methods to predict the form of the halo mass function. We have also developed a set of programs for simulating the excursion set formalism with arbitrary absorbing barrier. We present the mass functions obtained from these simulations for both spherical and ellip- soidal collapse. We find that although these mass functions are similar to those predicted by the theory, there is a mismatch between the simulated mass functions for different spectral indices which needs to be investigated further.</p>
URI:	<a href="http://hdl.handle.net/123456789/4170">http://hdl.handle.net/123456789/4170</a>
Appears in Collections:	<a href="#">MS-17</a>

## Files in This Item:

File	Description	Size	Format	
<a href="#">Yet to obtain consent.pdf</a>		144.56 kB	Adobe PDF	<a href="#">View/Open</a>

Show full item record



Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.