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Title:	Cosmological mass func- tion and effect of environment on dark matter halo collapse in power-law models
Authors:	Gupta, Suhani (/jspui/browse?type=author&value=Gupta%2C+Suhani)
Keywords:	Cosmological Dynamics Formation of Large-Scale Structures Theory of mass function Dynamics of Ellipsoidal Collapse model The Environment Moving Barrier problem Statistical Properties
Issue Date:	11-Sep-2018
Publisher:	IISERM
Abstract:	Observable universe has masses ranging from planets to stars, galaxies, clusters and so on. To quantitatively understand mass distribution in the universe, mass function is defined which is the number density of cosmic objects in a given mass interval. Mass function depends upon the complex gravitational dynamics involved in the structure formation. For low density perturbations that later form cosmological structures, linear the- ory is a good approximation but fails with increase in amplitude of perturbations as non-linear effects become significant. Non-linear formalism for structure formation involves spherical and more general ellipsoidal collapse model. In this thesis work, I have presented the formalism of mass function from the early works of Press and Schechter(1974) and the improvements by the work on Sheth,Tormen and Mo(1999) by studying the Ellipsoidal collapse model of struc- ture formation. Further I have tried to study the role played by environment in determining the collapse dynamics in ellipsoidal model and the role played by power spectrum in determining the mass function.
URI:	http://hdl.handle.net/123456789/1053 (http://hdl.handle.net/123456789/1053)
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