

FALL OF ASSOCIATIONS OF DWARF GALAXIES INTO THE MILKY WAY HALO

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Inside the Local Group, the satellite galaxies of the Milky Way don't have an isotropic distribution, instead most of them lie on structure almost perpendicular to the plane of the disk of the galaxy, called VPOS. At present there is not a theoretical model that correctly explain both the abundance and spatial distribution of these objects within the Local Group. This work presents a study, using Newtonian N-body numerical simulations, on the formation of disk satellites of the Milky Way (DoS) from accretion of dwarf galaxies that fall into the dark matter halo of the Milky Way following parabolic orbits with initial distances of 4, 2 and 1 Mpc. We analysed the morphological properties of dwarfs after 10 Gy of fall proposed for interaction with the Milky Way, the obtained spatial distributions about the plane of the host galaxy and the radial distances at which they are located. We found that, after 10 Gy of fall, the structures remain compact while keeping its spherical profile. Only associations of dwarf galaxies at distances of 1 Mpc manage to enter the halo of the Galaxy and could be considered as progenitors of DoS. This is supported by the fact that these closest associations are those that had precipitated into the halo of the Galaxy, and there are not observed associations of dwarfs at these distances, being the association 14+12 the closest to the Milky Way at 1.37 Mpc.

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STUDY OF GRBS HOSTS GALAXIES VICINITY PROPERTIES

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The study of GRBs host galaxies and its vicinity could provide constrains on the progenitor and an opportunity to use these violent explosions to characterize the nature of the highredshift universe.

Studies of GRB host galaxies reveal a population of starforming galaxies with great diversity, spanning a wide range of masses, star formation rate, and redshifts. In order to study the galactic ambient of GRBs we used the S. Savaglio catalog from 2015 where 245 GRBs are listed with RA-Dec position and z . We choose 22 GRBs Hosts galaxies from Savaglio catalog and SDSS DR12, with z range $0 < z < 1$, and a total of 1703 galaxies, in a local vicinity of $10h^{-1}Mpc$ radius to determine some photometric and population characteristics. We calculate the volumetric density populatation of glalaxies around the GRB Hosts within a volume of an sphere whit radius of $10h^{-1}Mpc$ and find a low density compared with a typical group of galaxies. In order to know the galaxies stellar formation state, in regions where GRBs are formed, we made an analysis of color index using SDSS data of $\mu[\lambda 3543]$, $r[\lambda 6231]$ and calculate the indexes $\mu - r$. We find a value $\mu - r = 2.63$, it means that the galactic ambient of GRBs Host regions are statistically redder than void and wall regions on a indirect way (Voids: $\mu - r = 2.043$; Walls: $\mu - r = 2.162$). Futhermore, we used a inverse concentration index analysis, $ICI = R_{50}/R_{90}$ and find that galaxies in GRBs Hosts vicinity are also of slightly early type than void and wall galaxies. With this work we provide characteristics on the regions for future works related with highredsift universe that using the GRBs.

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