

Seminarium Astrofizyczne
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Local Group Motion using Supernova type Ia

Supernova type Ia (SN Ia) are one of the accurate distance indicators which are used to measure the distances to distant galaxies. Using the redshift of the galaxy and its distance (estimated from SN Ia) we can measure its peculiar velocity. Nearby galaxies in the Universe are bound gravitationally and these bound systems of galaxies are called galaxy groups. We are part of such group which is called 'The Local Group' (LG), Andromeda galaxy is also member of this group. These galaxy groups show motion due to nearby masses such as other groups, clusters and superclusters. Our Local Group is also showing such motion and this motion can be seen in CMB dipole. To estimate the responsible masses for this motion of Local Group, dipole in peculiar velocities is useful. This dipole in peculiar velocities has the information about effective distance that can cause our group's motion. In my work, I have tried to calculate that distance. As SN Ia are not very frequent events, we don't have enough data points to get very accurate results so we need to generate artificial data more realistically. I have used velocity fields in the Local Universe to generate such a artificial SN Ia data and got the results which says that 'Our velocity and acceleration in the Universe are in the same direction!'

Serdecznie zapraszam,
Agnieszka Majczyna