Milky Way disc much bigger than thought: study

An image released by the ESA on July 5, 2010 from the Planck telescope of its first all-sky image. The main disc of Milky Way, our galaxy, runs across the centre of the image. | Photo Credit: AFP/NASA IMAGES

It would take us 200,000 years to cross the disc of our galaxy if we could travel at the speed of light, say scientists who found that the disc of the Milky Way is bigger than thought.

Spiral galaxies, such as the Milky Way, have discs which are really thin, in which the major fraction of their stars are found. These discs are limited in size, so that beyond certain radius there are very few stars left.

In our Galaxy, we were not aware that there are stars in the disc at distances from the centre more than twice that of the Sun. This means that our own star was apparently orbiting at about half the galactic radius.

However, now we know that there are stars quite a bit further out, at more than three times this distance, and it is probable that some stars are at more than four times the distance of the Sun from the Galactic centre.

“The disc of our Galaxy is huge, around 200 thousand light years in diameter,” said Martin Lopez-Corredoira, a researcher at the Instituto de Astrofisica de Canarias (IAC) in Spain.

In broad terms we can think of galaxies like the Milky Way as being composed of a rotating disc, which includes spiral arms, and a halo, spherical in shape, which surrounds it.

This piece of research has compared the abundances of metals (heavy elements) in the stars of the Galactic plane with those of the halo, to find that there is a mixture of disc and halo stars out to the large distances indicated.

The researchers came to these conclusions after make a statistical analysis of survey date from APOGEE and LAMOST, two projects which obtain spectra of stars to extract information about their velocities and their chemical compositions.

“Using the metallicities of the stars in the catalogues from the high quality spectral atlases of APOGEE and LAMOST, and with the distances at which the objects are situated, we have shown that there is an appreciable fraction of stars with higher metallicity, characteristic of disc stars, further out than the previously assumed limit on the radius of the Galaxy disc” said Carlos Allende, a researcher at the IAC.

“We have not used models, which sometimes give us only the answers for which they were designed, but we have employed only the statistics of a large number of objects. The results are therefore free from a priori assumptions, apart from a few basic and well established ones,” said Francisco Garzon, an IAC researcher.

It includes samples of a bug isolated from Alexander Fleming’s nose in 1915

END