

Explanation of the galactic rotation curve (Appendix 1)

Appendix 1 is the following article:
Explanation of the galactic rotation curve

http://www3.sympatico.ca/pierrejsavard/explanation_of_the_galactic_rotation_curve.pdf

Appendix 1

To demonstrate that it has little or no dark matter in a galaxy, I check with the rotation curve of a galaxy form very simple, or simply drive without a galactic bulge, it allows me compare my analysis to that of a galactic disk only, here dabord the link that gives the rotation curve for the galaxy Messier 33:

<http://gnralsujet23.blogspot.com/2011/11/ab.html>

The first part of the curve is a straight line, it does not doubt that part of curve, the velocity V varies distance (radius) R of the galaxy, then the density for this region disk is constant, and for this part, it only remains to verify the constant of proportionality is correct for the equation of the period T as follows:

$$T = \{[2(\pi)] / (Gd)\}^{(1/2)} \text{ (equation for a disc of uniform density),}$$

you can try the average density of our galaxy because we know that density toward the center of galaxies is much more dense elsewhere on the disk, as this galaxy (Messier 33) is probably less dense than our Galaxy (1 to 3.5 times less dense approximately), we can reasonably estimate the density toward the center of this galaxy, as that of our own galaxy which is .1 Solar masses per cubic parsec at worst can be multiplied by the square root of 3.5 (ratio of the maximum density between that of our this galaxy galaxy)

then try $d = .1$ solar masses per cubic parsec, or:

$$d = (6.76769) (10)^{(-21)} \text{ kg per cubic meter,}$$

was already obtained for the density, $T = 118$ million years,

This curve for Messier 33 stops being linear to 1415 kpc and about 73 km / s, with these two values we obtain a period of 117 807 000 years $T = \{[2(\pi) R] / V\}$, or about 118 million years, about exactly the same value as calculated theoretically with the formula above, the only possible error comes from evaluation of the density toward the center of this galaxy.

This shows that the constant proportionality the formula above can not be far wrong.

For the region of the curve is not linear, when there well as the speed is increasing, we know that for a density varies as $1/R$, the velocity V varies as the square root of R or as $(R)^{1/2}$, in fact this curve is growing a little less, but excluding zone of constant density, after $R = 1415$ kpc, only decreases the density may not be exactly $1/R$, as though it has no central galactic bulge, it still has a density important is constant and therefore there is a slight effect bulb of a zone within a $R = 1415$ kpc, we can explain easy to see why the growth rate is not exactly as $(R)^{1/2}$.

We also note that growth rate continues beyond the radius of the galaxy (average radius of 16.6 kpc about) in fact a constant speed would require a decrease in density as $1/(RR)$ or as $1/(R^2)$,

and if the density decreases faster than $1/(RR)$, while there is still same growth speed, but given the volume considerably around the galaxy, either by considering an area of some times the radius of the galaxy (beyond the radius), it makes a large mass and possibly there may be matter hardly detectable (black) beyond the radius of a galaxy, However, as we move the center of a galaxy and the matter hardly detectable (black) is rare, it is normal for a galaxy is an area of integration of matter and as such it can consider that a team has successfully integrated a proton antimatter around a core of heavy atom, substituting one of these electrons to that of the proton antimatter (which has a negative charge).