Proposition of an explanation for the “dark matter mystery”.

The aim of this article is to suggest an explanation for “dark matter mystery”. The explanation is based upon a Newton’s law modification. This modification is conducted from an Euclidean vision of relativity.

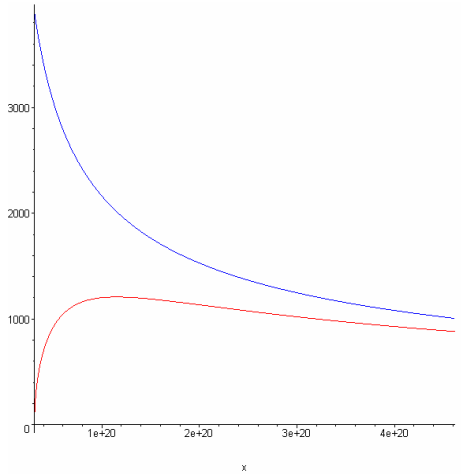
The result is the following.

The 2 curves represents, on y coordinate, the speed of the stars inside the Milky Way. The x coordinate represents the distant of the star from the galactic center. The units are “meters per second” for y and “meters” for x.

The blue one is retrieved using classical Newton’s law. The red one is obtained using this new modification of Newton’s law. Hence these are only theoretical curves.

We see that the red one is very close, qualitatively speaking, to the measured one : the one which comes from experimental measurements.. Each part of the red curve is the same as the actual measured one.

Even the “solid” part of the galaxy is explained, in which star’s speed is proportional with distance to the galactic center.



Moreover, this modification occurs only inside galaxies because of the presence of the stars in the galaxy. Inside a planetary system, for example, we do not get any modification on Newton’s law since there are no other matter than the sun and the planets. Here, in the case of the galaxy, the stars represents a very important and quite uniform amount of masses, which creates an important contribution when calculating the shape of space inside space-time.

Those calculations are based upon 3 principles, or postulates :

- Any particle moving with v speed along Ox axis, x increasing, compared to an inertial frame R (O x y z ct), deforms space-time around it with a rotation of the 0x0ct plan around the 0y0z axis, with an α angle between Ox and Ox’, such as $\sin(\alpha) = v/c$. This deformation is also propagating inside space at the speed of light, c.

- Matter is supposed made up of a restricted group of very small “indivisible” particles. These small particles are moving constantly at the c speed.

- Space shape in space-time is given at any point by the ratio of the infinitesimal space lengths, ds along space line, and dx its length projected on Ox. This ratio is equal at any point to the “relativistic operator” applied to the 2 following values :

a) L1 : sum of the heights of vacuum of space-time deformations propagated in Ox direction, x increasing,

b) L2 : sum of the heights of vacuum of space-time deformations propagated in Ox direction, x decreasing

$dx/ds = \sqrt{[L1\ L2]} / (L1 + L2)/2$ this is the new “relativistic operator”, calculated once.

This is for the “speed of stars dark matter mystery”.

There is another dark matter mystery, coming from a mysterious speed of galaxies inside their group.

For this, the modification of Newton’s law above calculates a greater G constant, explaining it simply. In fact, the study above retrieves also an equation of G, the gravitational constant. With this equation, this G value is much greater outside any galaxy, than inside a galaxy, which is our case. This difference comes from a “third speaker” in this equation, which is the stars inside each galaxy.

The practical and theoretical significance of this subject

Practical significance : dark matter is a false solution and we have here the real explanation.

Theoretical significance : we have the beginning of a unifying theory based on relativity.

How this article would differ from previous coverage of the topic

We have some recent observations which tends to prove that dark matter presence is closely linked with visible matter presence.
We are then searching for a modification of Newton's law, for explanation of these dark matter mysteries.

Here is an interesting one.

Author

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My credentials for writing about the topic

No one. Only the text and the results speaks for themselves.

Other information

The calculation for obtaining the red curve above is helped by computer. But it is based upon only 4 simple equations :

1) $dx/ds = \sqrt{[L1\ L2]} / (L1 + L2)/2$
2) $\cos(\alpha) = dx/ds$
3) $F = mc^2\ d(\tan(\alpha))/dx\ \tan(\alpha)\ (1 - \tan(\alpha)^2)(-3/2)$ "(-3/2)" stands for "power (-3/2)"
4) $F = m\ v^2 / x$

Only the first one is a new one, coming from the principle explained above.

The second and fourth are very classical, normal, physics equations.

The third equation is the classical relativity equation for a force, because $\tan(\alpha) = v/c$ in this case, with $v = dx/dt$.

We get $\tan(\alpha) = v/c$, when applying the principle of general relativity (null masses following geodetics). The difference is that here the mathematical model is Euclidean based, not Nimkovsky model. The space line tangent at any point makes an α angle with the Ox axis, such as $\tan(\alpha) = v/c$ where v is the speed of a moving particle along Ox axis. This particle is supposed at rest when infinitely far, and with a null mass.