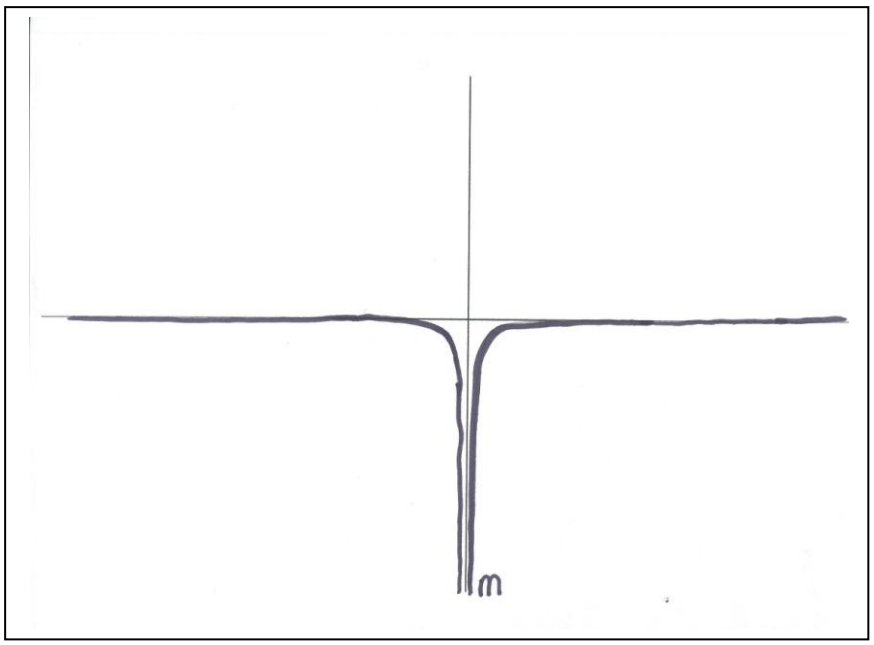
DIG
Modified Spacetime Curvature under the influence of Energy and Matter
V1 concept

Alexander F. Jonkeren

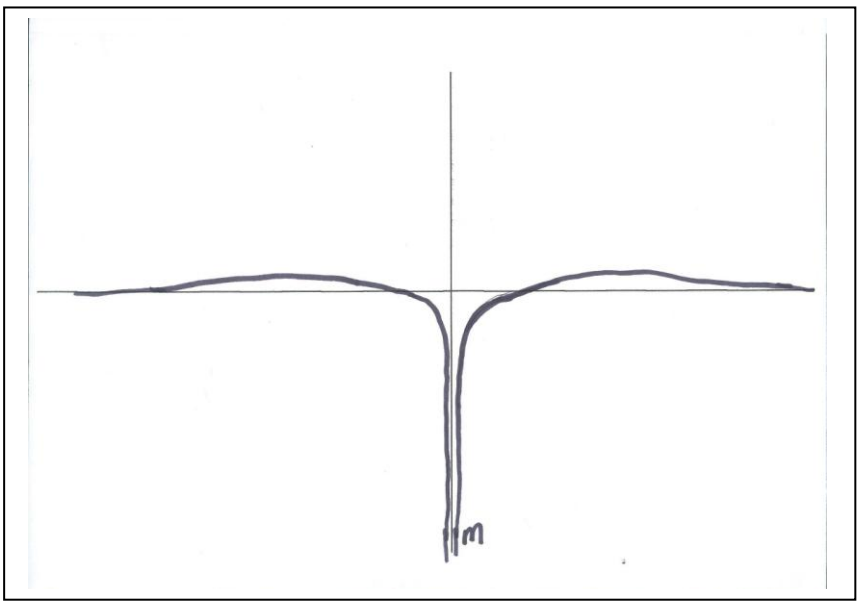
ABSTRACT
This paper describes a modification of the curvature in which spacetime is shaped under the influence of energy and matter. With this modified curvature it is possible to predict and probably explain many observed phenomena in Cosmology that cannot be accounted for by the generally accepted General Relativity spacetime curvature. Regarding all other aspects it does fully comply with General Relativity.

1. Introduction

The standard GR spacetime curvature and proposed modified spacetime curvatures are shown in below images, with the X-axis representing distance and the Y-axis gravitational force.

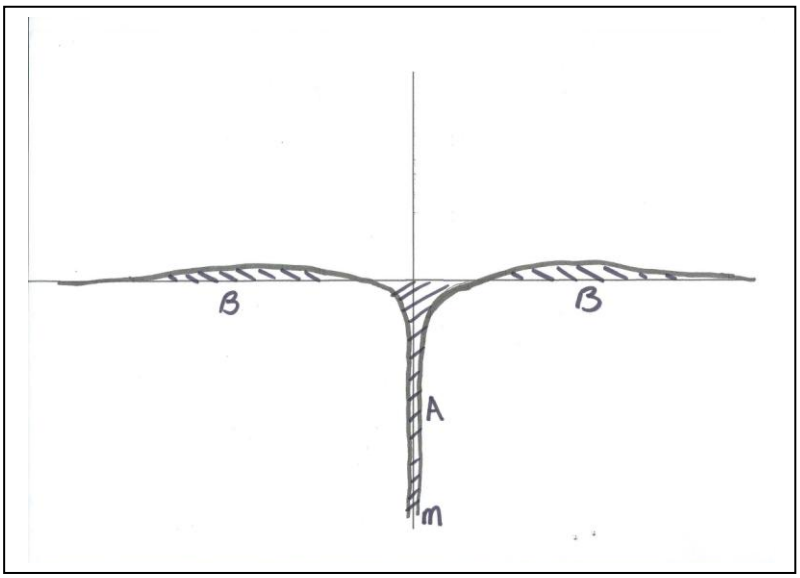


A. *crappy 2-dimensional representation of the standard GR spacetime curvature caused by Mass M*

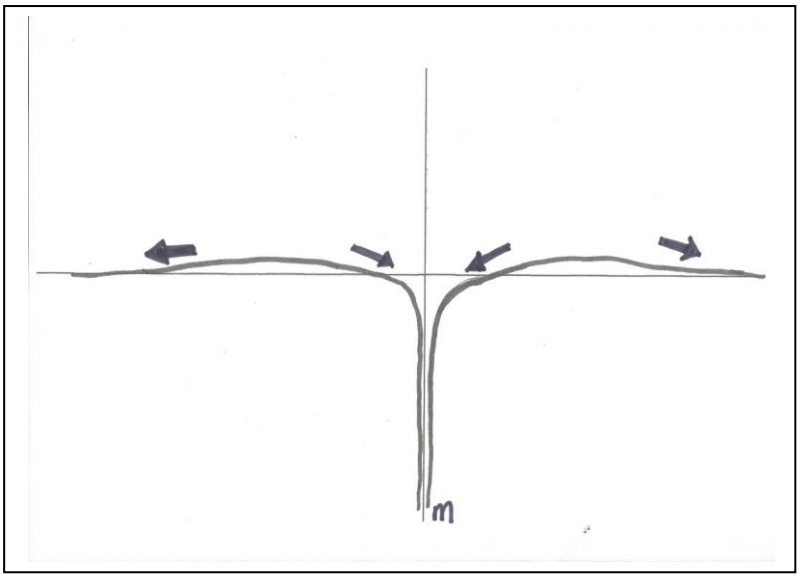


B. *2-dimensional representation of modified spacetime curvature (DIG), caused by Mass M (image cropped for clarity)*

The curvature is modified is such a way, that Area A equals Area B as depicted in below image, so symmetry is achieved with respect to the X-axis (which also represents non-curved spacetime).



C. *2-dimensional representation of Area A = Area B symmetry, where the X-axis represents non-curved spacetime*



D. *Directionality of acceleration of objects following the modified spacetime curvature on different distances form mass M*

2. Equations

No equation is yet known to describe the right DIG modified spacetime curvature under the influence of different masses, while keeping in line with the standard GR curvature for relative close distances. This is not for lack of effort, I have searched for many hours (mainly on online plotters) trying to match many different equations with Gmm/r^2 (or x^(-2) for plotters).

I therefore invite all who are interested to either post a possible equation in the comments or as an online document (Vixra) and post its title and location in the comments. Good (equation) candidates will be added in a following version with crediting the contributors, maybe sharing in several Nobel prizes.

3. Description

The proposed spacetime curvature is a simple modification of the standard GR spacetime curvature, and is also caused by the effect energy and mass have on spacetime. The big difference however is that although it is a simple modification, it seems possible of explaining multiple phenomena observed in cosmology. These observations cannot be derived by the standard GR spacetime curvature without the need of invoking dark matter and dark energy.

As can be seen in image D objects up to the pivoting point (highest point of area B) experience a bigger gravitational pull further out than in comparison with GR. And beyond this pivot point experience a gravitational pull in the other direction (push). Obviously with the modified curvature this is not a force counter-acting gravity.

It is merely the directionality of the spacetime curvature itself.

A good analogy to the modified curvature is when someone digs a big hole in the ground with a shovel. The end result is not only a hole in the ground, but also a higher surrounding ring of the material that was dug out, resembling an impact crater.

Here are some phenomena (among others) that might be explained by incorporating the modified curvature;

- The Pioneer anomaly
- Earth flyby anomalies of spacecraft
- Flat rotation curves of galaxies
- AGN generated relativistic jets
- The perceived accelerating expansion of the universe

4. Validating by observation

The methods of validation that spacetime actually follows the proposed curvature can be done by several predictions;

- The Pioneer 10 and 11 spacecraft (among other spacecraft) will continue to decelerate beyond what can be explained by thermal radiation. This will be the case up to a certain point where the deceleration will become a slow rising acceleration. Measurements of (changing) velocities of the spacecraft will be necessary

- The Oort Cloud will extend much further out than current models predict is possible, new observation of these Oort Cloud objects can confirm the extending gravitational pull of the solar system

- If the flat rotation curves of galaxies follow from calculation with the new equations (not yet available) describing the modified curvature

- When an astronomical object moves behind another astronomical object (or vice-versa), the modified curvature also predicts a small amount of anomalous photons before and after the object is obscured from view. These photons will be found is a arc-shaped area in between the two objects, caused by the deflection area that is formed on the outer half of area b (See image D)

- Direct measurement of the gravitational field of the solar planets and the Sun on different distances might validate the curvature, although I think the curvature planets generate would be almost too small to measure. As to the gravitational field of the Sun, it's effects would be much bigger only also much farther out. In this case the Poineer spacecraft might be of use as mentioned above.

5. Follow-up

Follow-up can be done when at least one promising equation has been found, this / these will be added in the next version.