Calculation of gravitational forces in a non-ideal sphere

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Objective

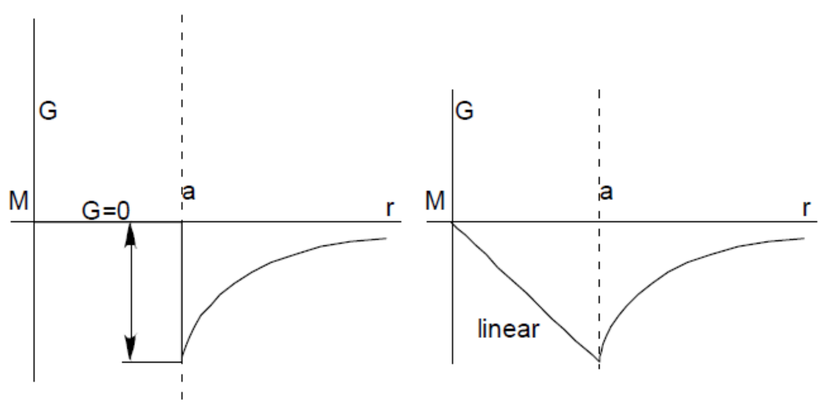
The purpose of this paper is to analyze the calculation of gravitational fields in a non-ideal sphere. Following a discussion and comparison of results with examples from the calculation of ideal spheres, the consequences of the determined results for the standard model (big bang model) are evaluated. The figures and graphs used for demonstration were taken from an EXCEL® datasheet, specifically designed to calculate the gravitational forces in a sphere.

Fundamentals of the calculation

The basis for the following calculations is the fact that on the inside of a hollow ideal sphere with an even distribution of surface mass, gravitational forces cannot be felt. In a homogenous non-hollow sphere, on the other hand, gravitational forces increase linearly toward the edge. The calculation of said gravitational forces is possible through the discrete calculation relative to a measuring point with the help of an EXCEL datasheet and is thoroughly explained in the paper about the gravitational forces of an ideal sphere by Dipl. Ing. Matthias Krause (2005) which can be found in this forum.

The model of a gridded sphere is necessary for a discrete calculation. However, the grids cause a slight difference between the ideal result (with an infinite numbers of particles) and the discrete result (with a limited number of particles). This discrepancy is naturally taken into account when comparing results. Nevertheless, the gravitational forces in a hollow sphere equal zero. What happens if this area around zero gravity is further evaluated and discretely calculated? Is it possible to discover new effects that might change the calculation of gravitational forces? *Figure 1* shows the gravitational field of an ideal hollow sphere and an ideal massive homogenous sphere, calculated discretely.

Figure 1



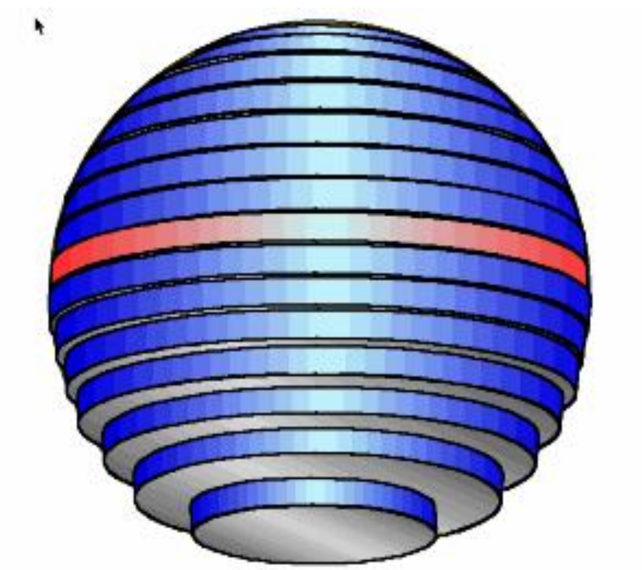
The left graph illustrates the result of discrete calculation for a hollow sphere with an even distribution of mass on its surface. The right graph shows the gravitational field of a homogenously filled sphere. Even though the gravitation inside and outside of both spheres were calculated, only the gravitation on the inside of the spheres matters for this calculation.

How do the gravitational forces change if they are calculated with the help of a non-ideally gridded model? In addition, it is interesting to determine what would happen to the gravitational forces if the sphere were not ideally hollow. These questions about the distribution of masses and gravity can easily be answered with discrete calculation.

How is the discrete volume calculation of gravity realized in a sphere?

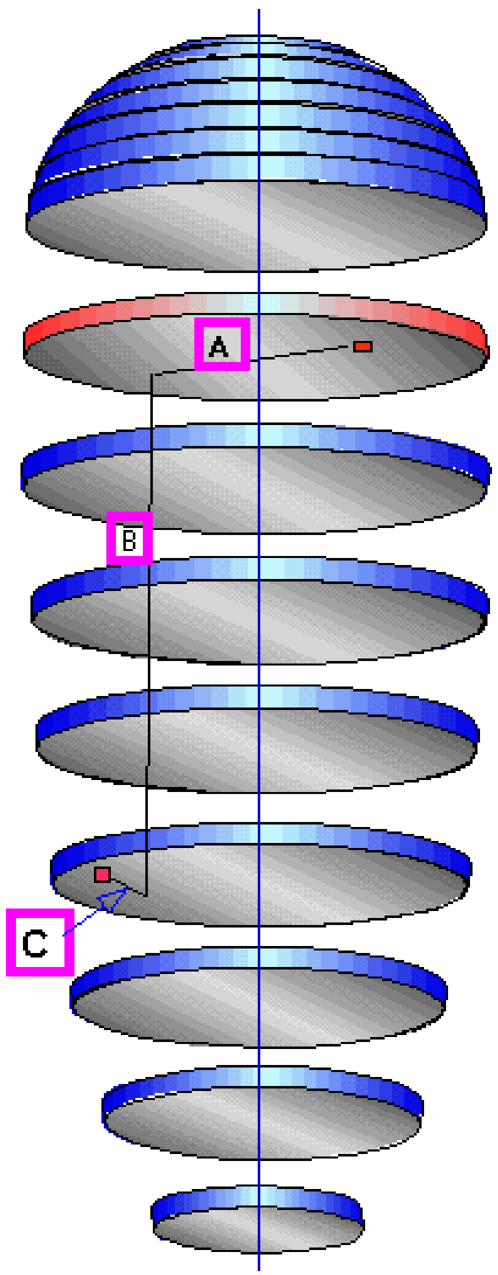
The construction of a sphere model is derived from the gridded model of a circular plane. Instead of calculating only the area of a single plane, several stacked planes are taken into consideration. To ensure the symmetry of the sphere model, the mass of each plane is predetermined. It is possible to compare the model with an onion with its concentric layers. The sphere appears to be cut into slices, each of which will provide the single planes for the discrete calculation. Two symmetrical planes are combined to calculate the gravitational forces with the help of two coordinates on the planes.

Figure 2



The slices of the sphere model are clearly visible here. The plane of symmetry is red, and the upper dome and lower half sphere are cut into seven symmetrical slices. Even though the model is similar to an onion, the layers resemble more a stack of differently sized coins with steps between the planes. The more slices or planes a model has, the smaller the steps turn out to be. Hence, it pays off to create a model with a larger amount of planes, for example, 21, which provides 10 measuring points. Though the work is tedious, the results of the calculation are more accurate.

Figure 3



A sphere with 10 measuring points (MPs) has 5065 mass points. Multiplication with 10 MPs results in a proud sum of 50,650 calculations. As a sphere is symmetrical to the middle plane, and each plane itself is symmetrical to its diameter, it is only necessary to calculate half of the middle plane and one quarter of the other planes (either the half of the upper or lower half sphere). However, the results for the middle plane have to be multiplied with two and the results for the other planes have to be multiplied with four.

Figure 3 illustrates the single planes of a sphere. The three values (A, B, and C) are used to determine the distance between the mass points and measuring point. The formulas used to calculate the gravitational forces need adjustments for every mass point. The mass of each of the 10 planes is predetermined and also symmetrical. The EXCEL spread sheet is similar to *Figure 3*, and even includes the cancellation of gravitational forces for each of the mass points.

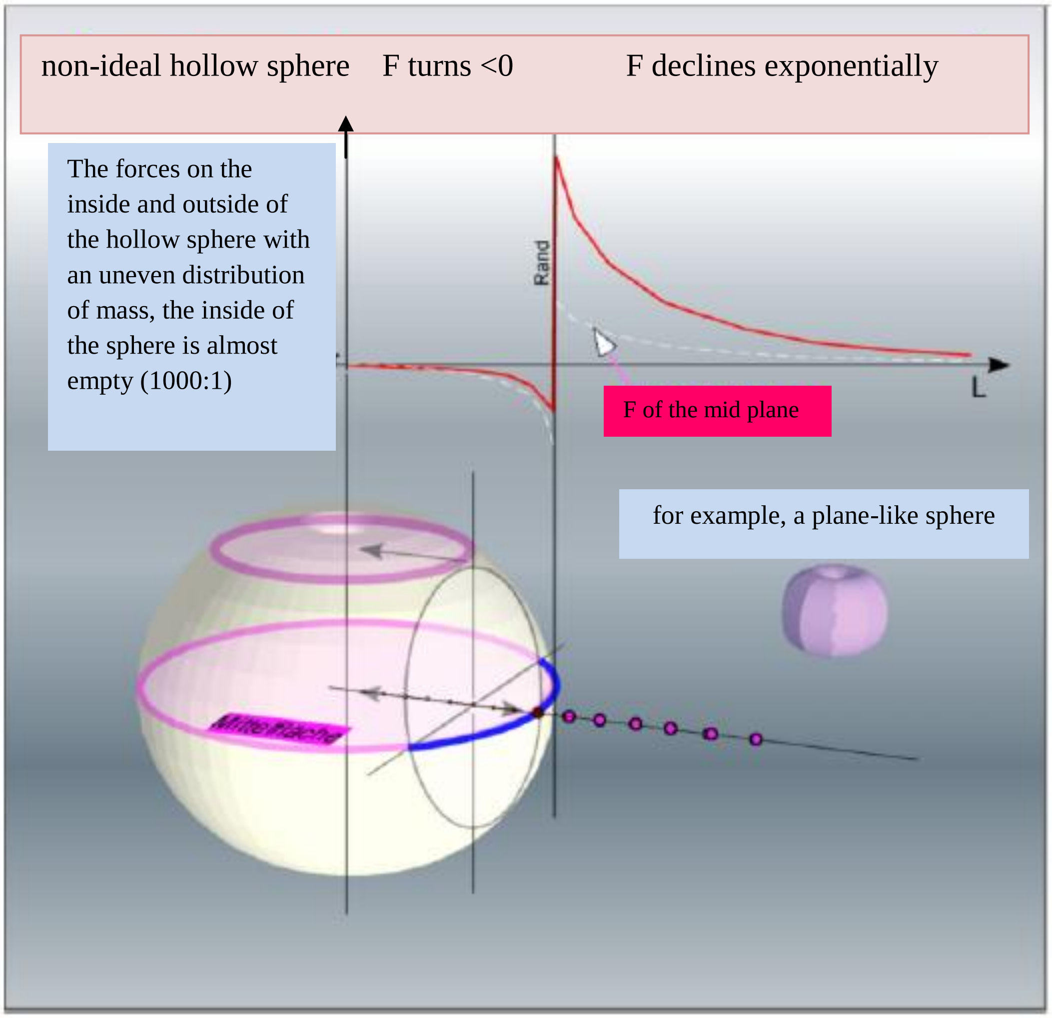
Before determining the gravitational forces within a non-ideal hollow sphere and a non-homogenous sphere, it is preferable to think about the characteristics of these two types of spheres.

The non-ideal hollow sphere

To make things a little easier, a symbiosis between full and hollow sphere – a nearly hollow sphere - shall be examined first. Because formulas for the calculation of gravitational forces in such a sphere are missing in mathematical books, the only possible way to determine the gravitational forces is to test the discrete model with a symbiosis. It is possible to enter every possible mass variation into the EXCEL model, which will deliver the according gravitational forces and other parameter.

Ideal spheres have identical declining forces on their outside, therefore, the mixed sphere should have similar forces on the outside. As the forces in ideal spheres are either zero or linear increasing, a positive, which means a force directed toward the center, is to be expected on the inside of the sphere. The following figure illustrates the result.

Figure 4



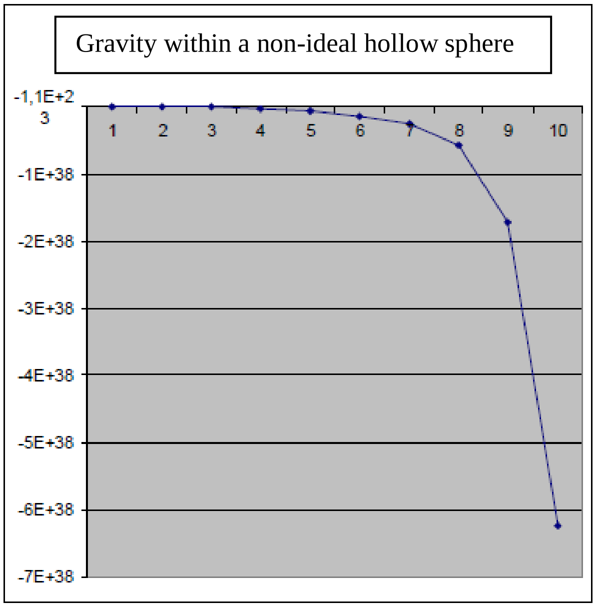
On the outside of the sphere, gravitational forces decline as expected. On the inside, however, the gravitational forces are negative. Let us revise: the forces in an ideal hollow sphere are zero, but the middle plane of such a hollow sphere has negative gravitational forces (Krause, 2005). So how does a hollow sphere need to be constructed to facilitate these negative gravitational forces? The answer is easy. The sphere should be a mixture of plane, hollow sphere, and sphere: a plane-like sphere, for example a rotation ellipsoid. The reason for this is probably the grid lining of the model, which keeps the sphere from being completely round. Hence, the model does not equal a completely hollow sphere. This slight variation causes an error big enough to let any mass on inside of the sphere appear to accelerate toward the outer edge. The sphere in the model has a small amount of mass, which influences the gravitational forces toward the edge. The ideal hollow sphere does not allow any masses on its edge like a non-ideal hollow sphere.

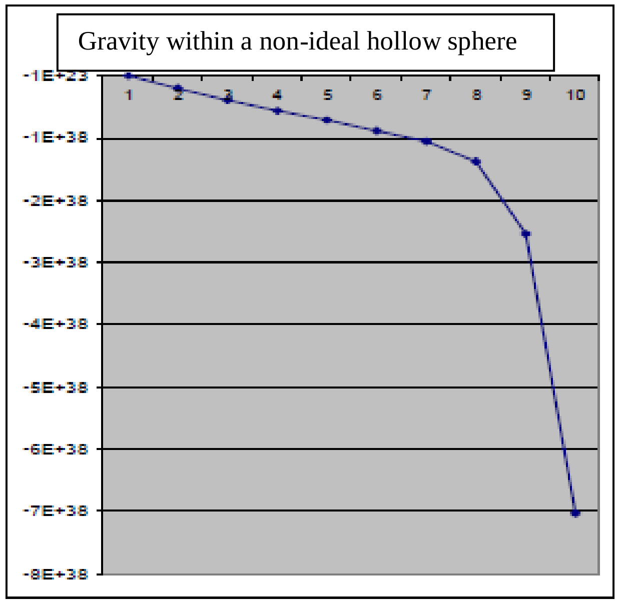
Consequently, to further examine the non-ideal hollow sphere, the discrete model is equipped with a few more mass points at the edge. The modification of the model according to the new guidelines confirms the expected results.

The model illustrates how easily the gravitational forces are altered. It only takes a few mass points at the outer edge. With the help of the non-ideal sphere or the errors in the ideal hollow sphere model, an unexpected solution has been found.

Figures 5a and 5b

show the internal gravitational forces toward the edge of the hollow sphere. (the center is on the left, the edge on the right side) If the sphere is slightly altered (plane-like), the curve changes dramatically.





With the according mass distribution in the sphere, it is possible to influence the curve to the point that, it in fact, declines linearly(!) to the edge. The mass at the edge of the sphere is not taken into consideration, but the gravitational forces are positive toward the inside of the sphere.

Conclusion for the calculation of the gravitational forces of a non-ideal sphere

If the masses of a non-ideal sphere concentrate at the edge, the gravitational forces will pull them further toward the edge of the sphere. Once they reach the edge; however, the gravitational forces reverse and direct toward the center of the sphere. Hence, the masses at the edge of the sphere are trapped close to the edge, where they have the highest amount of kinetic energy and the smallest amount of potential energy. From the center of the sphere, the gravitational forces are negative and pull masses toward the edge. From the edge of the sphere, gravitational forces are positive and accelerate masses toward the edge.

The gravitational forces in a sphere model do not oppose each other (they are not a new form of force either). The well-known gravity pulls masses toward the edge. The ratio of gravity within and around the sphere is approximately 1:1000. This ratio dwindles as the sphere flattens, for example, if 75% of the combined mass of the sphere concentrates close to the edge, the ratio is 1:100 (for the single mass points).

In a round plane and a non-ideal sphere the gravitational forces on the inside are negative, which means directed towards the edge, as long as they are filled with a relative small number of masses.

What are the consequences for the cosmic standard model?

If the results of the previous examination of gravitational forces in non-ideal hollow spheres are applied to the entire cosmos, one can expect the following scenario:

- → The universe is static and stable; it does not expand or shrink. Albert Einstein favored this cosmic view; however, without an alternative explanation for the movement of galaxies, he could not explain the galactic red shift. Nevertheless, after evaluating the gravitational forces in and around a hollow sphere, it becomes clear why galaxies are drawn toward the edge of the cosmos (based on a central point of view).
- → The universe is slightly flattened; it is a non-ideal sphere, similar to the Kerr metric of rotating black holes (Mueller, 2004). Each mass in the cosmos has a torque, starting with the smallest unit, all the way to the largest galaxies. If this logical fact is extended, the whole cosmos has a torque, comparable to the movement of stars assembled in the shape of a sphere.
- → Because of the non-ideal sphere shape of the universe, the gravitational forces on the inside are negative. Therefore, all masses (galaxies) fall and are accelerated toward the edge of the universe, where they reach their peak speed of near the speed of light. Once galaxies reach the edge of the cosmos, the direction of their movement changes permanently, and they begin to orbit around the center of the cosmos close to its edge.
- → The galaxies close to the edge of the universe move at almost the speed of light. Their high amount of kinetic energy means a great increase in relative mass. Consequently, the masses at the edge of the cosmos have a steadily growing value compared to the masses closer to the center. Their ratio may even be 1:1000. The relativistic ɣ-factor that ensures the correct ratio between the masses close to the edge and close to the center of the universe in addition to the background radiation with its temperature is 2638. This is calculated with the formula discussed in the paper about cosmic background radiation.

$$\gamma = \frac{1}{\sqrt{\frac{1-v^2}{c}}}$$

- → The mass distribution within the universe is currently even. Within the next billion years, however, the majority of galaxies will have moved toward the edge. The universe is slowly differentiating. This process cannot be reversed because an even distribution of masses in the universe is the first step in the life of this universe. If we assumed that the cosmos is millions or even billions of years, it would be nearly empty today. The majority of galaxies, visible from the center only as dimly red glimmering stars, would be orbiting at the edge of the cosmos.

→ The light emitted by the galaxies orbiting at the edge of the universe reaches us as isotropic cosmic background radiation. (The direction of their movement is irrelevant.) The galaxies have to orbit at a speed of 99.99999282% of the speed of light around the center of the universe, to facilitate the temperature and red shift of the current background radiation.

→ The universe is similar to a black hole, as it has an event horizon, and therefore, a solid, unmovable frontier. In short, we are living inside a gigantic, cosmic black hole.

→ Due to the immense speed of galaxies, time almost comes to a stand-still at the edge of the cosmos. It passes 2638 times "slower" than on Earth. Beyond our cosmos is eternity, as time seizes to pass, which implies that we are living in a type of time-bubble.

This theory explains the increasing and accelerating red shift of galaxies towards the edge of the universe, and, **at the same time**, allows the cosmos to be spatially consistent. Hence, the continuous expansion of the universe is rendered obsolete, just as Albert Einstein, a genius in his own right, already suspected – and he was right!

This, and all the other papers in this forum, illustrate that our current understanding of the cosmos is faulty. Scientists have taken a wrong turn in their theories and are scrambling to explain facts with fiction.

"Dark energy and maybe even dark matter highlight the weaknesses of the model [of the Big Bang Theory]. Though the Big Bang is an easy explanation and does indeed reflect our observations, it contains two ingredients of our imagination - similar to the antique astronomers, who invented Epicycles to explain the movement of planets. This part of the model will fail, because physicists are generally on the wrong path if they have to invent pieces of the puzzle"

(Spergel, 2004).

Cosmologist Spergel's statement is correct: Physicists are wrong with their invention of dark matter and dark energy. However, this does not mean that a new field of physics had to be invented to explain the cosmos. Instead, the calculation errors of gravitational forces within spheres have to be eliminated. According to modern physicists, only 4% of the universe is visible, while the remaining 96% consist of dark matter or dark energy. This paper, clearly illustrates that these two inventions are completely fictional, illogical, and unnecessary. Hence, every model, such as the standard big bang model based on or supported with dark energy or matter is questionable.

References

EXCEL Modelldatei KOKUG10

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