# The Mechanics of the Cosmos

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## Abstract

With the notion of the cosmos existing as a superposition of manifold levels of varying dimensions, we seek to simplify things by explaining all phenomenon in the cosmos with the same set of laws, and by ensuring the same laws work throughout the cosmos and on all the manifold levels. We therefore apply and adopt the laws of classical mechanics which usually only applies to the physical manifold to the remainder of the manifold levels of the cosmos.

## 1. Introduction

From classical mechanics to relativistic mechanics, we have come to gain a very in-depth understanding of the interactions in the macroscopic world. However, these time-tested theories have been shown to break down at the scale of atomic and sub atomic particles, thereby hindering our efforts to have a unified theory of all of our known physics [1][2]. This paper scales and adopts the theories and principles of the physical manifold to the remaining manifolds [3], in an attempt to describe all phenomena across all the manifolds with the same set of laws.

We will first look at the circumstances surrounding interactions of matter across manifolds of the cosmos, from interactions on the same manifold to interactions between manifolds of different manifold levels. A special focus will then be placed on the atomic manifold in adopting the laws of classical physics to atomic systems. We will then explore the interactions between matter as a result of perturbations on the fabric of their containing manifold.

## 2. General Mechanics

When matter of the same manifold level interacts, they do so according to the usual laws of physics. In the case of a physical system, the interactions will be governed by the established laws of classical mechanics that gives the relationships between force, matter, and motion.

The laws of mechanics for the physical systems of manifold level three can further be adopted for the other manifold levels by adopting the laws to their respective number of dimensions. For instance, adopting the theory of General Relativity to all of the manifold levels will result in the Modified Einstein Field Equation (MEFE) and all of the implications associated with it [3].

In adopting Newton's law of gravitation to the manifold levels [4], the exponent of the distance between the two bodies increases with each increasing manifold level, and vice versa, decreases with each decreasing manifold level.

Where $n$ is the manifold level,

$$F = \frac{m_1 m_2}{r^{n-1}} \tag{1}$$

From the above equation, we can see that the intensity of the force of attraction between two bodies decreases exponentially with each increasing manifold level. Special attention also needs to be paid to the universal system of manifold level one, where the gravitational force of attraction between two bodies is independent of the distance between them.

There are intra-manifold interactions, where matter within the same manifold level interacts. For instance, as in physical interactions where planets interact with stars in a star system, or where multiple stars interact in a multi-star system. Also, as in atomic interactions where the electron cloud interacts with the nucleus of the atom.

There are also inter-manifold interactions, where matter of the same manifold levels may interact with each other through the fabric of a containing lower manifold level. For instance, two atomic systems may interact through a physical manifold, or two physical systems may interact through an ethereal manifold.

In the case of an inter-manifold interaction where physical systems interact through an ethereal manifold, as it gets to the outer portions of the physical system and as the influence of the physical system wanes down, the gravitational force will come to vary inversely linearly with the radius, as opposed to varying with the inverse square of the radius as in the usual physical laws of mechanics. This causes the gravitational force of the physical system to weaken at the outer portions of the system, and the effects of the containing ethereal manifold begins to kick in and dominate. This explanation reconciles us with aspects of Modified Newtonian Dynamics (MOND) [5], and also serves as an alternative to the dark matter hypothesis.


## 3.  Atomic Mechanics

We will give special consideration to the mechanics of the atomic system, since there is even a very prominent branch of science (Chemistry) dedicated to the study of atomic systems and the interactions at that manifold.

Across all manifolds of the different manifold levels, systems tend to assume a form with a dense nucleus, with an orbiting cloud under the influence of the gravitational force of the nucleus. This phenomenon is very apparent in physical systems, with super massive blackholes as the centre of galaxies with orbiting stars, with stars as the centre of star systems with orbiting planets, and with planets as the centre of planetary systems with orbiting moons.

Scaling it down from the physical system to the atomic system, we will reinforce the notion of the planetary model of the atom [6], with the nucleus at the centre of the atom with a cloud of orbiting electrons. Following the trend of the physical system, it is not far-fetched to assume that particles of the electron cloud also could have their own nucleus further with its own cloud of orbiting sub systems.

The density of the nucleus of an atomic system however, will be heavier than if it were occupying the same space in a physical system. This is due to the nucleus having a hyper volume with degree of four, instead of the usual cubic volume in a physical system, and hence more matter can occupy the same space in an atomic system relative to a physical system.

 A denser nucleus of the atomic system gives rise to a relatively stronger gravitational force from the nucleus. This means that the orbiting clouds needs to orbit around the nucleus at a relatively incredibly higher velocities to maintain its course around the atomic nucleus. Furthermore, because the atomic

system is operating in four-dimensional space, two complementary planes of accretion discs are formed by the cloud around the atomic nucleus [3]. Thus, for every energy level, there are two complementary sections of cloud discs occupying that energy level. This leads to the concept of having two electrons occupying each energy level of the atom.

So far, we have been likening the structure of an atomic system to the structure of a physical system. Now we will step it up further and model the interactions of the atomic system also after that of the physical system. In doing so, atomic bonding will happen due to the intra-manifold interactions of the atomic systems. This makes atomic molecules more like an n-body problem at the atomic manifold level, likened to the interactions of a multi-star system at the physical manifold level.

## 4. Perturbation Interactions

When matter of a higher manifold level moves through a lower manifold system, there is a continues perturbation on the fabric of the lower manifold along the path being tracked by the matter on the move. Since the matter is moving from one point to another, it is continuously being removed from its previous position and being introduced to its current position. This action causes a wave on the fabric to be radiated outwards from the point of interaction [7].

When the wave passes by a stationary object on the fabric of the system, there is a displacement in the position of the object, but as the wave leaves the vicinity of the object, the object returns to its mean position with little to no deviation from its original position. However, when the wave passes by a moving object, it causes a deviation in the trajectory of the object. In the case where the object is moving in a straight line, the object will deviate away from the source of the wave as it is hit by the wave. This phenomenon can give rise to the notion of repulsion between objects or particles.

The cloud of an atomic system constantly generates and radiates perturbation waves as it orbits the nucleus of the system. In a material where all the clouds of the constituent atoms are aligned and orbit in the same direction, all the tiny waves generated by the individual orbiting cloud discs interfere constructively to create a bigger and stronger wave. As the resultant wave crosses from the atomic manifold to the lower-level physical manifold, its intensity is strengthened and its range is increased, further boosting the wave and giving it an appreciable force of repulsion as experienced through the containing physical manifold.

Two atomic bodies will repel each other as the fabric of their containing manifold is perturbed, but when the perturbation waves from their two complementary clouds cross from the four-dimensional atomic manifold to the three-dimensional physical manifold, the waves from the cloud disc acting in the extra dimension of the atomic manifold that is not visible in the physical manifold flips. This rather gives a force of attraction instead of a force of repulsion, that acts perpendicular to the repulsive force from the waves of the other cloud disc.

## 5. Conclusion

Let us analyse some trends across manifold levels, most of these have been made obvious by now.

1. Density of nucleus of a system increases with higher manifolds.
2. Rate of orbiting clouds increases with higher manifolds.
3. Range of gravitational force decreases with higher manifolds.

As usual, this paper does not seek to disprove the myriads of theories and models that are already doing the outstanding job of explaining physics as we know it. Rather, it is expected that more models may even be developed to further simplify the current explanation in this paper, and to make it easier to work with.

## References

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