

THE SEARCH FOR NEW PHYSICAL PRINCIPLES

A Short Monograph on the Strange Consequences of Zero Inertia

By

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Suppose an asteroid, located quite a distance from the earth, yet still within the gravitational attraction of the earth, entered a small region of space which was governed by a different gravitational constant G (G might be considered to be a complex variable dependent on space and time, in which case G would be understood to be $|G|$). The gravitational force on the asteroid would then be $F = |G| M_{\text{earth}} m_{\text{asteroid}} / R^2$ where R is the distance from the center of the earth. This can be recast into the standard form such as follows

$$F = (G_0 M_{\text{earth}} / R^2) m_{\text{apparent}}, \quad \text{where } m_{\text{apparent}} = (|G|/G_0) m_{\text{asteroid}}.$$

Thus we see that the apparent inertial/gravitational mass of the asteroid has changed due to the factor $|G/G_0|$. This type of inertial/gravitational mass is considered to be entirely separate from the type of inertial mass determined by the Higgs' field in particle theory. From this concept of what might be referred to as a 'variable' inertial/gravitational mass¹, there are three types of strange phenomena which can be deduced.

Levitation is one of these strange phenomena, which obviously can be deduced very quickly, assuming that $|G| < G_0$. There are two more even stranger consequences which can be deduced from the following example.

Suppose there is a baseball traveling at momentum \mathbf{p}_1 , and it is headed for a large flat sided block of stone which is at rest. We insist upon flat sidedness so that the recoil will be simple and predictable. We assume that the conservation of momentum holds before and after collision, namely:

$\mathbf{p}_1 = \mathbf{p}_2 + M_0 \mathbf{v}$, where M_0 is the mass of the block of stone and \mathbf{v} is its recoil velocity vector. \mathbf{p}_2 is the recoil momentum of the baseball after collision. Now suppose we are able to 'activate' the 'variable' gravitational scalar 'constant' within the nucleons of the stone block.

We now have $\mathbf{p}_1 = \mathbf{p}_2 + |G/G_0| M_0 \mathbf{v}$. If we let $|G| \rightarrow 0$, we then have $\mathbf{p}_1 = \mathbf{p}_2$ so that the baseball *does not* bounce off the stone block! Now consider if the baseball were a photon, then there would be no reflection, hence *invisibility* !

Now consider the associated idea of *transposition of matter* or in other words, matter passing through matter with no impedance. If we go back to the baseball, we have $\mathbf{p}_1 = \mathbf{p}_2$, but the stone block is still there under the condition of $|G| = 0$; however, it has no inertia by the very fact that $|G| = 0$. We therefore have to conclude that the baseball traverses the stone block with no impedance to its passage! These are the very strange consequences deduced from the idea of zero inertia.

References

1. Bissonnet, P. (2015) A New Perspective on Advanced Space Travel. *Journal of High Energy Physics, Gravitation and Cosmology*, **1**, 14-24.