

A Note on Mass and Gravity

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January 2022

Abstract. The principle of equivalence implies the inertial mass equals to gravitational mass. Gravity is understood in terms of the quark model, amended by Platonic symmetry. This allows to comment on the origin of inertial mass and how it can be controlled when controlling gravity.

1 Introduction

In this brief note we apply the recent progress in understanding gravity to the problem of what mass is.

Inertial mass can be understood classically in terms of Newton's Law $ma = F$, but becomes meaningful once the constitutive law for the force is given. Since this is Gravity or EM ¹, which is essentially a harmonic function (fundamental solution of Poisson equation), we have an equation which can be compared with harmonic oscillator (planetary orbits are ellipses etc.) and in the electronic realm, with $LdI/dt + RI + \frac{1}{C}Q = 0$. Mass plays the role of inductance for momentum flow, and a reference to Lenz law is instructive.

From the mathematical point of view, mass is introduced via Legendre transform when establishing the correspondence between Hamiltonian and Lagrangean mechanics (tautological 1-form [9]).

Now gravitational force, with its associated potential, can be controlled by aligning and reorienting the spin directions of protons and neutrons in nuclei [1, 2, 4].

We claim that this coherent orientation plays the role of superconductivity for momentum flow, being able to achieve a critical state of null mass².

¹With a velocity term in Lorentz Law, to include magnetism.

²The controversial UFOs, yet very much real for the researchers in this area, are capable of instant accelerations and sharp, apparently "L" angle change of direction.

2 Aligning the EM and G flow

Since most masses in practical situations are essentially neutral, only the Gravitational component, spin direction dependent comes into play.

At this stage we only speculate in a qualitative way, using an intuitive picture of electric force field lines in the spirit of Faraday. This time the fractional charges of the 3 quarks in a neutron will interact as a basic braid with 3 strands. The chaotic orientation of spin directions form a network structure which we interpret as having an “inductance” to momentum flow, hence exhibiting the mass coefficient.

It is not clear at this stage how the aligning the spins via Dynamic Nuclear orientation affects this network, but we know experimentally that it decreases the weight of the body [1], as experimentally proved by Alzofon in 1994.

If we assume the equivalence principle of inertial mass and gravitational mass, then this reduction should generate a reduction in the inertial mass.

Further support for this equivalence principle comes from the fact that charge and mass are conjugated $P = mv + eA$, where A is the vector potential momentum, in the generalized momentum P .

Regarding the quantization of mass, see the work of Mc Gregor [6]. In various other articles it is apparent that the π meson can be taken as a unit (pair of quarks, with a duplex flow of quantum information / Platonic geometry / symmetry change).

This is consistent with the above Platonic description of baryon geometry and interactions via EM strands, similar with quark line diagrams of the SM.

3 The Larger Context

In ancient Greek Mathema means knowledge, study, much more than our specialized Mathematics. Science, experimentally oriented is quite new at this scale, but allows the boost of technology. Yet Science is too much fragmented, and well known facts and theories from other domains of research are not considered when pondering upon what is possible and what is not.

Specifically, generally speaking, we know we are not alone in the Universe, and that gravity manipulation and mass reduction are possible.

The new theory of Gravity based on the SM allows to set these possibilities on a firm, mathematical basis.

4 Conclusions

Indeed, reality is mathematical for a much deeper reason we will not dwell herein; Wigner’s “unreasonable effectiveness” of mathematics starts to become apparent ...

First, “Reality” is not only quantum, i.e. discrete, but also locally finite. There is only one interaction and the associated gauge group is a finite subgroup of $SU(2)$. The “pixel” of S-T is the Hopf bundle [7] and its finite subbundles justify Bohr’s model ($Z/n \rightarrow U(1)$) and Moon’s model ($\Gamma \rightarrow SU(2)$).

From this much new insight is derived easily: three fermionic generations, Gravity within the Electroweak Theory, Gravity Control and Cold Fusion etc. Moreover inertial mass can be controlled too.

What remains at this stage, is to build the rigorous mathematical model, equations etc. One first goal is to lift Coulomb’s Law to the (co)tangent space, as a law spin direction dependent.

The braided EM / Weak Force idea, extending the Quark Line Diagrams of weak “force” (functorial change of group representations as quark flavor transitions), should lead to a new understanding of what mass is and how to control it ³

References

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³Additional details and references can be found in the author’s Research Journals [8]