

The Origin of Gravity as a Side Effect of Other Forces

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Abstract:

For a long time, gravity was taken as a well understood field of physics and so an almost boring topic. This assessment has considerably changed. No field in modern physics causes so many headaches to the scientists.

As a solution for the open problems it will be shown that gravity has not to be taken as a force on its own (the so called 'Force no. 4') but as a side effect of the other forces, i.e. of the strong force and of the electric force. This side effect works in such a way that light like-particles, when moving in a field of those forces, are caused to perform a zigzag motion and in this way to move more slowly than with the original speed of light 'c'. The degree of this zigzag motion depends on the strength of the causing fields. The location dependency of this retardation causes such particles to undergo refraction. This refraction affects not only photons but particularly those particles, which perform the permanent oscillation within an elementary particle. And this refraction within the particle causes the basic gravitational acceleration according to Newton for a particle at rest and also the modified acceleration according to Einstein for a particle at motion.

So, the general relation between any kinds of objects in space is described by this fundamental physical process, which in standard physics is formally covered by General Relativity. And for the case of a weak gravitational field it is described by an equivalent mathematical formalism as given by Einstein / Schwarzschild. For a strong gravitational field the results differ from the ones of Einstein / Schwarzschild; they are, however, not in conflict with the experimental situation.

An important consequence of this understanding of gravity is the fact that a gravitational field does not depend on the mass of the source but depends only on the number of elementary particles building the source. That means that a light particle like a neutrino or photon makes the same contribution to the gravity field as a quark.

As a further consequence, the existence and the effect of Dark Matter, which is now represented by photons and neutrinos, is quantitatively explained.

The unresolved problem of Quantum Gravity, which is expected to yield the unification of relativity (gravity) and quantum mechanics and which is the heaviest problem in modern physics, becomes obsolete, as the original forces causing gravity are completely covered by quantum mechanics.

And, as a little extra, there is the potential visible to explain the Pioneer Anomaly.

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