

Gravitational Relativity

Proposed by David Penny

1. The only intrinsic property of matter is the electric charge of subatomic particles in matter. There is no relativistic change of the quantity of intrinsic electric charge of any subatomic particle in matter at any velocity in any relative frame of reference.
2. Subatomic electric charges in matter emit longitudinal electric waves. Positive electric charges transmit to negative electric charges and negative electric charges to positive electric charges. These longitudinal electric waves traveling in opposite directions create standing wave phenomenon which appears to be static electric fields around these subatomic electric charges.
3. Like polarity electric charges in subatomic particles of matter have slightly less repulsion force than the attraction force of unlike charges in matter which creates a slight electric attraction force, known as gravity, an electric field phenomenon. Gravity, a standing longitudinal wave phenomenon, is better known as gravo-electric wave-fields.
4. Gravo-electric wave-fields translate and rotate with their respective body of matter, composed of subatomic electric charges. These gravo-electric wave-fields extend infinitely into space. These gravo-electric wave-fields of large celestial bodies of matter become the ambient relative frames of reference for all of the laws of physics in accordance with Mach's Principle. These gravo-electric, longitudinal wave-fields act at a distance into infinity, diminished in strength by the square of the distance from the point of emission and delayed by travel at the same speed as transverse electromagnetic waves.
5. Maxwell derived the speed of transverse electromagnetic waves as $c = \frac{1}{\sqrt{\epsilon_0 \mu_0}}$ where ϵ_0 is the electric constant (permittivity) and μ_0 is the magnetic constant (permeability) of the electromagnetic medium of transport of electromagnetic waves. These two constants are proportional to the strength of the electric and magnetic fields of the ambient electromagnetic medium of transport. The speed of light and other transverse electromagnetic waves is not constant but varies inversely with the strength of the electric and magnetic constants of the medium of transport, even in deep space. Longitudinal gravo-electric wave-fields are the electromagnetic medium of transport for transverse electromagnetic waves and determine the electric and magnetic constants for Maxwell's derivation. Since the longitudinal gravo-electric wave-fields approach zero strength in deep space, far from bodies of matter composed of subatomic electric charges in matter, the speed of light and other electromagnetic waves will approach infinity in deep space.

- 6. Similar to waves from a ship, both transverse electromagnetic and longitudinal electric waves (including gravo-electric wave-fields) can act at a distance from the point of emission long even after their source has moved or has ceased to exist. In accordance with Mach's Principle, gravity can act at infinite distances in the Universe. The gravo-electric waves will travel at speeds approaching infinity in deep space in accordance with Maxwell's derivation, reaching distant galaxies in a relatively short time. Also, the effect of the gravitational pull of one celestial body can effectively be instantaneous on another celestial body since the second body will interact with the previously emitted gravo-electric wave-field of the first body. For instance, the Earth will travel through the gravo-electric wave-field emitted by the Sun eight minutes previously and the gravitational pull of the Sun on the Earth will appear to be instantaneous. If the Sun is annihilated, the Earth would continue to feel its gravitational pull for eight minutes after its annihilation, just as the Earth continues to receive electromagnetic waves from celestial bodies destroyed years ago.**
- 7. Magnetism is not an independent phenomenon. Magnetism according to Maxwell's magnetic equation of state has no source in sharp contrast to electric fields which have an electric charge as a source according to Maxwell's electric equation of state. There is no magnetic monopole. Magnetism is a dependent phenomenon, the vector cross product of electric charges moving in a gravo-electric field. There is no magnetic phenomenon without electric charges moving in gravo-electric wave-fields.**
- 8. Mechanical properties of matter are electromagnetic phenomena, or more strictly electric phenomena, since magnetism is a dependent phenomenon of electric field and gravo-electric wave-field interactions. Mass of a subatomic particle is a function of the quantity of electric charge, the relative velocity in an ambient gravo-electric field, and the diameter of the charged particle. Kinetic energy of a subatomic particle is electro-magnetic energy developed by the subatomic electric charge moving in an ambient gravo-electric field.**
- 9. All laws of physics are related to ambient gravo-electric frames of reference. Electro-magnetic waves interact with ambient gravo-electric wave-fields. For instance, light, traveling in a gravitational field, will bend (refract) toward the higher gravo-electric wave-field density where its velocity will decrease.**
- 10. All physical phenomena are the products of subatomic electric charges in matter and their relative velocities and accelerations in their ambient gravo-electric frames of reference. Time and space dimensions are linear and independent. There is no warped space. In accordance with Mach's Principle, the total matter in the Universe with its subatomic electric charges gives the Universe a background, gravitational frame of reference. This universal gravitational frame of reference has some components time delayed by the speed of gravo-electric waves which will vary in velocity relative to this universal gravitational frame, approaching infinite speeds in deep space, void of matter.**