ID ZGV-2-02
Title Deriving Gravity from Charged Particles
Stage 2-Micro-Scale 3-Space

Abstract

A derivation of gravity from charge is presented, using a pictorial analysis of the ZGV model. For attractive gravity (+g) spacial flow and time dilation is demonstrated, together drawing “curved space”. Gravity is found to be a 2-part dynamic composed of: 1) spacial recession (space in motion) and 2) an increase of spacial pressure, retarding time's tempo. No wave, particle or agency except space itself is needed. Space is the carrier of g. Repulsive gravity (-g) is shown in deep space.

Assumptions

1. The ZGV model to date is understood and makes sense. The reader is advised that there are 6 earlier short papers (ZGV-0-01, ZGV-1-01 to 04, ZGV-2-01), each a chapter explaining the model. These include critical aspects of the model which need to be digested: the nature of motes, a model for an arrow of time, spin-walls and their event-horizon like nature etc.

2. The ZGV models' anticipation of the key characteristics of charge in the mote 3-sea and of protons / electrons:

i) Motes from the surrounding 3-sea are mechanically attracted to the lower-pressure about electrons and become under-pressurised i.e. suffer a speeding of growth = tempo acceleration.

ii) Motes are mechanically expelled from protons - these are over-pressurised which, by expanding also over-pressurise the local 3-sea which suffers a slowing of growth = tempo retardation;

3. These characteristics are, in ZGV, charge and the electric field. Note that charge is a dynamic; the electric field is a dynamically maintained spacial distortion - one of many forms of “curved space”.

Preamble

This section on gravity is independently formed by the author yet functionally matches other parties solutions, especially that of Lew Price (although he is advised the idea goes back to at least 1931).

The reader is advised that the author knew of Lew Prices' work, so recognised immediately what the ZGV model was showing. Lew Price takes a macro view and showed no similarly explicit internal process, driving the dual effects of gravity. ZGV's approach seems unique. The successful finding of gravity is the major corroborator that the arrow of time may indeed be real.

Note though that Lew Price's work is more a traditional approach; there is maths aplenty there.

Other parties interested in the area have also approached similar conclusions, however have struggled for they have no arrow of time, nor do they suspect the spin-wall about charged particles.

Derivation of Attractive (+g) Gravity

Gravity in ZGV arises from charge-transfer between the electron and proton, considered here in the form of a Hydrogen atom.

The mechanism of charge-transfer is simple, being (in either order):

> an external mote is consumed (hidden behind a spin-wall) by an electron, and
> a mote is released (from behind a spin-wall) by a proton.

These motes are taken to possess "unit charge" i.e. that their energies are identical.

However the PV(*p,v*) situation of the motes is different:

> motes consumed by the electron have PV(local: Lo, local: Hi)
> motes emitted by the proton have PV(from early Universe: Hi, from early Universe: Lo)

so even though the PV product of each may be the same constant, there is a volume shortfall and a pressure excess for each trade.

The consumption / emission cycle is now described and diagrammed in stages:

1. Start condition: Local mote-space "neutral" i.e. in balance

2. Electron consumes a local mote
2. a) exterior mote space flows in to the atom to take up the volume loss (the "inflow of space")

3. Proton emits a "young" mote M
3. a) the mote M begins to trade P => V i.e. to age rapidly, but may not immediately make up volume loss. Note that by encroaching, exterior motes continually reduce the "missing volume"
3. b) mote M meets / impacts encroaching local motes, M still having higher-P
3. c) given no missing volume and excess P, mote M drives on, overpressurising the local area
3. d) which retards the growth of the many local motes i.e. retards local tempo about the atom.

Observations:

Item 2. a) states that space flows towards the atom. This is the "recession" of space; a known mechanism accepted as able to move galaxies about.

Item 3. d) slows mote growth about the atom. Assuming that this dissipates by inverse square (reasonable, as both volume and pressure effects are inverse square) then motes on average are smaller by an inverse square law, approaching the atom. This matches known curved space, as does the tempo retardation due to the raised pressure.

There is no reason to think that this process is not subject to aggregation, i.e. the more atoms, the more pronounced each effect becomes.

In ZGV this is +g i.e. attractive gravity; a state of space about matter made up of two parts:

a) inflow of space towards mass, and
b) compression of space at the atom causing curvature and tempo retardation.

Any small mass in a +g field would be “carried along” by infalling space i.e. fall towards the field focus, experiencing apparent mechanical compression and tempo retardation as it nears the focus. This is “curved space”.

Notes:
1. Einstein's Principle of Equivalence that the +g process has identity with acceleration. We can employ this as a route to decompose the mechanisms of inertia and momentum; the road to Newtonian mechanics. The author has been down that road and found the dynamics of gyroscopes, the electric motor, the retardation of photons in non-vaccuo and more.

2. In the early Universe, local mote space is much smaller / denser; the volume and pressure disparities are smaller, between the spacial motes and the motes held within the proton.

As early mote volume is less, hence the effect 2. a) is less; plus the 3. d) effect is less pronounced. The key is the 3. a) stage - the longer this lasts, the longer the out-of-balance state persists.

Conclusion: Gravity seemingly increases as the Universe ages. It must be stated that this variation needs consider the impact of simultaneous growth of tempo periodicity (tempo period increases as the Universe expands) - a formal analysis is needed here.

Derivation of Repulsive (-g) Gravity

Consider a notional cube C defining a region of mote space. Let C be located in deep space; that is, all masses / galaxies are very remote and evenly distributed about the notional cube C.

Consider a matching +g attraction on each face of C (the faces being Cx, Cx'; Cy, Cy'; Cz and Cz').

Effect of +g Inflow: Each face of C experiences a flow “out” towards the remote galaxies. Being plastic, cube C is pulled “bigger”.

Effect of +g Curvature: Each face of C experiences curvature which is very “flat” and in opposite sense across each face i.e. the curvature on Cx matches but is inverse to that on face Cx' etc. It is likely that no net curvature is experienced as a) each curvature is weak, b) they oppose so cancel.

Consider the faces Cx and Cx'. Over time, the planes defined by those faces move apart due to recession induced by gravity, at a tempo faster then the usual PV expansion of cube C.

This process is -g and matches several descriptions of the MOND effect.

Note that we also have a new form of distorting time: cube C has expanded faster then it might have i.e. it is running over-tempo, due to being in -g space.

The author terms this effect as “Time Distension”, the inverse of Time Dilation.

Later works will show that this effect offers an analogue to a cooling process as seen in the early Universe; it is suggested later that Time Distension drives the Pioneer effect; it cools KE.

Pros and Cons

There is no proof at hand that this is true, yet the author notes it would be trivial to so do.

This is an easily tested model due to the anticipated tempo interactions of charge. Place samples of known decaying isotopes in a strong positive field, and others in strong negative charge field - and see if they age differently. The negative isotope samples should age the quicker.

Further, if this model be true then presently formed gravity detectors can never work - they are all in frame and doomed to see nothing. This model suggests different approaches to building a "gravity wave detector"; the approaches are cheap and easy to construct hence to test.

The author has found that this model successfully addresses several known "hard problems" (solutions to which are presented in later papers) the principle hard problem being the Allais Pendulum effect, which is duplicated both in terms of pendulum movement and in terms of tempo variations recorded at ground level. (Notice: the +g field itself is subject to gravity, experiences gravitomagnetism and the key trick - notice that the Earth has strata of distinctly different densities.)

Afterword

The model fits observed reality well and does not upset the Standard Model (except in a potentially embarrassing regard, described later).

A new phenomena, Time Distension, is shown. The long-missing "gravity wave" is seen to be not needed; gravity is akin to a fog or cloud about masses; a dynamic of charge transfers at the atom.

This is a promising model; the author is inclined to believe it. Testing is needed.

Embarrassingly, in the above model of gravity work is indeed involved. Pedantically, any variation of form of energy e.g. volume and pressure events (driven by the trade between electrons and protons) is work, and in vast amounts. The work involved to, say, keep a planet in orbit is large.

The convention that no work is done is another way of saying "we cannot see work being done - and we notice no diminution over vast times to suggest work is done". Most accelerations demand work; given the Principle of Equivalence that gravity and acceleration have identity it would be reasonable to think that gravity also involves work.

That no human hand is involved (just the spin and pressure situations of the Universe) makes the "gravity involves no work" a moot point.