Electromagnetism energy and space
Keep It Simple Stupid (KISS) – Ideas
REPLAY

For discussions from the nature's nature !
(http://github.com/apotkonen/gt)

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PREFACE

Personally I have been missing clear coupling and simplicity between electromagnetism and quantum mechanics modeling, which is now fuzzy area, overloaded with terms. Peoples have done lot of good work and existing models are usable for the practical life. Still there is need to go back in time and lift again obvious possible connection between electromagnetism and quantum physics on the table, if there is any possibility to get any clearance to our relativistic world. It's done with the lazy mathematician method: Guess the correct answer and let the others to proof that your and other historic proposals were right. Here correct answer is found with the simple "Duck test": "If it walks like a duck, looks like a duck, and quacks like a duck, it's a duck". In practice I state that there is only electromagnetism, energy and space in our relativistic world, noting else, nothing less. Electromagnetism itself is kind of progressing phenomenon, supporting causality and offers for humans possibility to define time which is handy for modeling and tracking this causality, but time definition itself is also based to electromagnetism, energy and space, the major ingredients just proposed for our generally relativistic world. I really do not go to mathematic models, because then we overload ourselves and loose our target under mass of details. I try to explain needed change in our thinking in simplistic way, referring things we know from general relativity.
Hopefully you'll get some ideas from here for your professional life!

Sincerely yours Ari Potkonen

Online: `http://github.com/apotkonen/gt`
`https://raw.githubusercontent.com/apotkonen/gt/main/general.pdf`

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Chapter 1

Guessing correct answer

1.1 Supposition

Our generally relativistic world we see consists only from electromagnetism, energy and space. Nothing else is there !

Electromagnetism itself is kind of progressing phenomenon, supporting causality and offers for humans possibility to define time, which is handy for modeling and tracking this causality, but time definition itself is based to electromagnetism, energy and space, the major ingredients what just proposed for our generally relativistic world.

1.2 Hypothesis

Hypothesis is that subatomic particles electron, positron, proton and antiproton are actually pure electromagnetic waveforms curled up in it's own space.
Schwinger limit (Julian Schwinger [6]) gives limits for electric field $E_c = 1.23EV/m$ (Eksa Volt / meter) and magnetic field $B_c = 4.41GT$(Giga Tesla) after we can see nonlinearity in scale of electron Compton wavelength (Arthur Compton [2]) $\lambda_e = 2426fm$.
Strong electromagnetic fields in Compton wavelength scale ($\lambda = \frac{h}{mc}$) can produce discrete numerable curled waveforms ($\bar{\lambda} = \frac{\lambda}{2\pi}$), $\bar{\lambda}_e = 386fm$, harmonics where wave goes with light speed, but from local observers perspective outside from curled space, time seems to be stopped and we see kind of frozen representation from curled wave.

$$\hbar = \frac{6.582119569}{10^{16}}[eVs] = \frac{1.054571817}{10^{34}}[Js] \tag{1.1}$$

$$h = \frac{4.135667696}{10^{15}}\left[\frac{eV}{Hz}\right] = \frac{6.62607015}{10^{34}}\left[\frac{J}{Hz}\right] \tag{1.2}$$

$$m_e = \frac{E_e}{c^2} \tag{1.3}$$

Electron curled spacetime radius $\bar{\lambda}_e$ is

$$\bar{\lambda}_e = \frac{\hbar}{m_e c} = \frac{\hbar c}{E_e} = \frac{6.58eVs \cdot 299\frac{m}{s}}{10^{13} \cdot 511eV} = 386fm \tag{1.4}$$

and diameter $\varnothing_e = 772fm$.

Electron annihilation released γ -photon wavelenght λ_γ is

$$\lambda_\gamma = \frac{h}{m_e c} = \frac{hc}{E_e} = \frac{4.14eVs \cdot 299\frac{m}{s}}{10^{12} \cdot 511eV} = 2.436pm \qquad (1.5)$$

There are few possibilities what has happened; Either space is bending with light speed in curl so wave seems to be static or time has been stopped because wave in curl curving proceeds with light speed or both because light speed is reached in formed curl, kind of total internal reflection forming standing wave having only one peak visible for externals and other peak is fully internal, only visible inside of curl. This bending makes curled wave behave like noticeable charged particle, still being a discrete standing wave due to unlinearity making it possible to exist.
Curling can create discrete numbered relativistic bending forms to space, and we call known stable curl forms to electron, positron, proton and antiproton.
Each curl bend space around and bending is called to gravity. Known lowest energy curls are electron and positron. Electron curl outside visible electric field is negative and other handed antiparticle positron has positive electric towards outside.
Because of this outside bended electric field, local observer can accelerate and move electrons and positrons using external electromagnetic field. When electron, it's curl is accelerated with the external electric field it will face relativistic Doppler effect it's wave is coming shorter which means that curled wave gains more energy and more mass. While decelerated curl wavelength widens and energy is lost to breaking against the external field.
Proton and antiproton next energy rich left and right hand sided electromagnetic field stable curls we know. Proton has positive field out-

wards and antiproton has negative field outwards. While energy is much bigger than electron has the wavelength of curl is shorter and curl size is smaller. Tight curl forms stronger bend to space and we see it as stronger gravity.
Electron negative electric field and proton positive electric field pull curls towards each other and those can superposition over the each other still maintaining own separate curls, proton smaller and electron bigger.
When curl and it's anticurl meet happens annihilation[1] where curl opens, gravity vanish and energy is again in electromagnetic form on local space. Pair production[5] can happen again from this released energy.

1.3 So called "weak interaction"

With the additional energy electron-curl $2426 fm$[2] can reach proton-curl size $1.321 fm$ and form new harmonic curl called neutron $1.319 fm$. Due to needed extra energy neutron curl, even it's electric fields sum outside seem to be zero, is affected by external electric disturbances and cause neutron curl decay to proton and electron curl, average time to decay is about fifteen minutes.
This decay is called to beta β-decay to and acting force is called to weak force. Forces come during curl creation from electron Compton wavelength shortening taken energy – during size shrinking for electric field strengthening done work, and proton positive, electron negative electric fields mutual pulling force done work. These forces and work amounts are opposite ones, partially cancel each other, causing sum force to look a like "weak force" or "weak interaction".

Interaction begin and end state energy levels we can see from known rest masses whic directly relate to each separate or created harmonic curl energy at rest.

1.4 So called "strong interaction"

There is no strong interaction at all, seen strong interaction is relativistic electromagnetic interaction. For example proton - proton interaction is two different proton curls interaction, electromagnetic force pulls those away from each other starting from long distances. While curls come near by each other starting to form common harmonic curl, common relativistic space where both electromagnetic waves fly at light speed, and outside observer sees static view from curl having positive electric field towards outside observer. In this case repelling forces are so big that formed harmonic curl "Helium-2 (diproton)" isn't stable, and protons are immediately diverging apart.
If we combine above in weak interaction told proton and electron combination called neutron with the proton we will get the stable "Hydrogen-2 (deuterium)" harmonic curl having one positive electric field towards outside observer, which easily form superposition with the with additional electron curl.
Created harmonic curl has rest mass different from the incredients rest masses and that is the needed or given energy during harmonic stable curl creation or it's breaking, those are the strong forces at common harmonic curl – atom core creation and breakage.
We should not use human defined term time here at all because in the curl where field stregth is so high that unlinearity exists and affects to electric fields gravity and time. Electromagnetic forces reactions

in nuclear scale can be defined just by comparing the incredients and results rest masses. Differencies are creating the dynamic forces driven reactive movements on reaction.

Because peoples are so keen to use they time definition to understand reactions we could give explanation using term time, so it might be helpful when reaching the the matter how strong nuclear force could be just electromagnetic force and nothing else; When these separate waves are reaching near by, and they both are on nearby by light speed in they own curls, coming together enoug to form common curl they propagate at light speed, which means that relativistic electromagnetic force average affecting time, impulse time, shorter than what static observer can see, therefore observer sees "strong interaction" because momentum is force multiplied with time, and now time is it's relativistic way 137[3] times shorter electromagnetic interaction than what observer thinks. This leads to situation where force has to be 137 times stronger than static observer thinks to get same effect happen [7] than what observer has been used to in he's local reference frame.

And if change work get done, then later on uncurlig also give that same bang backwards. Yep it's strong, but it's still electromagnetic force now forced to happen to item going with light speed at start state in it's own curl.

This same process affects to all known more or less stable nuclides[4]. External conditions may wary, causing smaller or bigger probability for certain combinations forming.

$$\frac{1}{\gamma} = \sqrt{1 - \frac{v^2}{c^2}} \;\; ; \;\; \gamma = 137.035999084 \tag{1.6}$$

$$\frac{v}{c} = \sqrt{1 - \frac{1}{\gamma^2}} \; = \; 0.99997 \tag{1.7}$$

By counting from speed difference how many internal reflections Nr_{min} are needed to cover full circle $2\pi \; rad \; = \; 360 \; deg$ we notice that about 406 reflections do the thing; Wave full internal reflection from minimum matter amount, one electron itself.

$$Nr_{min} \geq \frac{\pi}{\arccos(\frac{v}{c})} = 405.58 \tag{1.8}$$

1.5 Superpositioning

Formed common curl – atom core – has positive electric field visible outside and it attracts electron curls to superpositioned position balancing electric fields. Superpositioned electrons are relatively loosely connected and related to chemical properties of atom having core curl and superpositioned electrons.
Antimateria core curl have negative electric field visible outside and it attracts positron curls to superpositioned position balancing electric fields towatd outside local observer.

1.6 Big Bang

Even material production is shown mostly be pair production creating 50% matter and another 50% of antimatter. Due to matter and antimatter annihilation process repeats several times before local cumulation occur. Withing existing local cumulations, probability that

matter can stay longer intact grows. There will be places having more matter and other places having more antimatter. This way material probability survive longer grows. Any asymmetry in creation will boost cumulation significantly because there is no need to have huge distances between before massive cumulations can occur without risk to sudden annihilation due gravity merged local material and antimaterial cumulation collision.
Due to expected amount of energy and mass of big bang incredients must had, we could say that black holes are in some amount reversible. Because you can't have that amount mass, localized energy, without black hole formation before bang.
Most obvious explanation for the big bang is supermassive antimaterial and material back holes collision and expansion in combined black hole or expansion outside of combined black hole due the material annihilation in big way, same time opening each particle curl which remove gravity and electromagnetic radiation pressure overcome reduced gravity even pair production try to maintain it, in these circumstances immediate annihilation occur and radiation energy is free to enlarge space or even escape from black hole in form of big bang.

1.7 Dark Matter

Space might be fractalish having space and blackholes in blackholes, then average density can be higher in inner space than what local observer can notice in near by environment, or there are unknown, unnoticed curl forms not affecting nor reacting with the known forms.

Chapter 2

Mathematical formulation

You are welcomed to continue this work and fill the missing.

There is need to understand electric field in it's own space and how this looks from remote static observer viewpoint. All in detail.

2.1 Pair production

Incoming wavelets. Curl creation in collision. Curl own space curvature development and from observers point static situation after that.

Formulation of discrete curl curvature form, and it's relation to gravity.

2.2 Annihilation

Original curls in detail, how waves summing at cross section of curls and how this leads to curl opening.
Gravity behaviour during curl curvature opening.

Chapter 3

Proof from formulation correctness

You are welcomed to write either theoretical proof, or model something we could measure nature and compare to calculations made based to formulation.

Bibliography

[1] *Annihilation.* URL: http://wikipedia.org/wiki/Annihilation.

[2] *Compton wavelength.* URL: http://wikipedia.org/wiki/Compton_wavelength.

[3] *Fine-structure constant.* URL: http://wikipedia.org/wiki/Fine-structure_constant.

[4] *Live Chart of Nuclides.* URL: https://www-nds.iaea.org/relnsd/vcharthtml/VChartHTML.html.

[5] *Pair production.* URL: http://wikipedia.org/wiki/Pair_production.

[6] *Schwinger limit.* URL: http://wikipedia.org/wiki/Schwinger_limit.

[7] *Time dilation.* URL: http://wikipedia.org/wiki/Time_dilation.

General Theory Back Cover Abstract

Root question here is that do we understand spacetime curvature around energy concentration when energy is small and dimensions are small on subatomic and atomic scale.

This booklet breaks traditional method based description and from the physics around as. Aim is have discussion, drop statistical methods for while for now and go back to the philosophy basics. Idea is well known from mathematics: Guess the correct answer and try to proof it to be true. In this booklet we really only lift the idea up, because others have done years and years work around these issues and we do not have solution yet.

Mostly what's done here is some proposal from reclassification of terms/items. Existing statistical method based theory verified by experiments, is not anyway wrong, but it's wide use prohibits, to ask meaningful questions. Or yes those have been asked, but not really seriously researched. Now I again lift these obvious questions and try to propose guessed, but obvious solution for accurate mathematical formulation. We need mathematical model capable to explain time dependent behaviour on local coordinate system and how it transforms to lightspeed frame in subatomic, atomic scale. not just the statistical representation of it as now with existing models.

If exact mathematical solution is not found, we should have at least enough to model and find computational solution for the simplest examples we could think.

this means that I state or assume that all what we have is spacetime, electromagnetism and energy. Nothing else is there, even we have told to ourselves something else.