Relativistic Supersymmetric 6 Quarks Model

Considering the electromagnetic atom a topological structure of two intersecting (partially merged) manifolds (longitudinal waves or branes) vibrating with the same or opposite phases, their cobordian submanifolds created in and by such intersection will be the subatomic particles of the nucleus shared by this dual system, acting as fermions when the phases of variation of the intersecting manifolds are opposite and acting as bosons when those phases synchronize becoming equal. The quarks of the system - considered as the pushing forces caused by the displacement of the intersecting fields while vibrating - will be identical in the bosonic and fermionic times, that is to say, supersymmetric. The point of the intersection of the system, that remains the same during the whole phases, but moving left to right in the fermionic phase and upward and downward in the bosonic one, will be the point of convergence of all the fermionic and bosonic interactions, representing the unification of the gauge couplings.

I think supersymmetry could be understood in a natural way if we considered the atom as a dual system formed by two intersecting (partially merged) fields varying (vibrating) with the same or opposite phase (two intersecting longitudinal waves).

The subatomic particles of the central nucleus shared by that binary system would be the subfields created by and in that intersection. Their behavior would be different, acting as fermions or bosons, depending on the synchronization and desynchronization of the phases of variation of the two intersecting fields.

A - When the two intersecting fields vary with opposite phase (when one of them contracts the other one expands and vice versa), the subatomic particles would be fermions ruled by the Pauli Exclusion Principle (PEP). In that case, the electron and its antiparticle the positron would be the same subfield moving in a pendular from left to right.

(The pendular displacement would describe a circle because of the precession that would take place after each expansion and contraction); as they are a same subfield they would be Majorana antiparticles.

That displacement towards left or right of the electron/positron subfield would be a consequence of the variation of the two intersecting fields, being moved towards the side of the intersecting field that contracts.

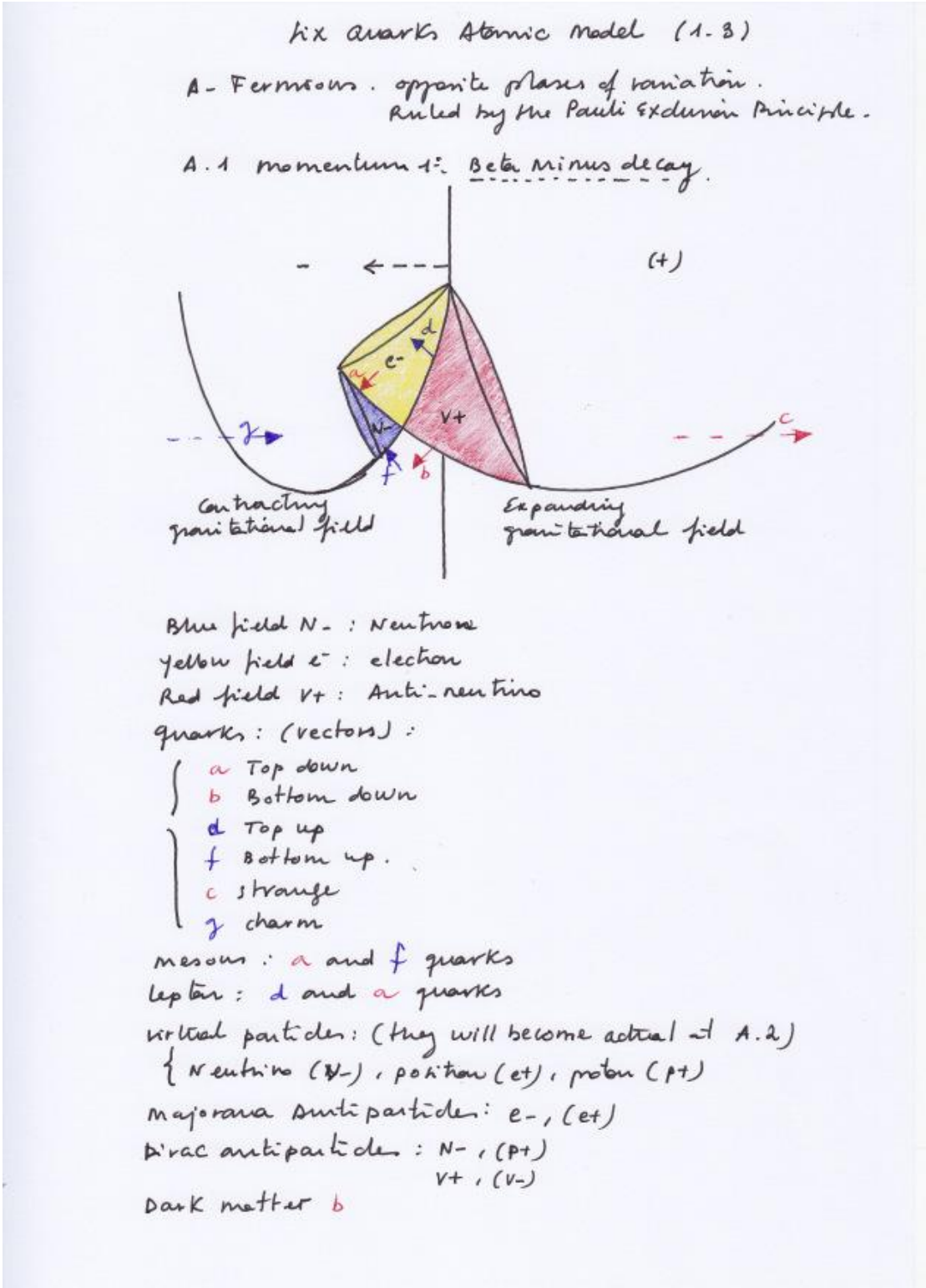
The subfield Neutron/Neutrino and their related antiparticles Proton/Antineutrino would exist at the left or right sides of the system respectively, in this way: When the left intersecting field is expanded and the right one is contracted, at the left side of the system there would be an expanded neutrino while at the right side there would be a contracted proton;

A moment later, when the left intersecting field gets contracted and the right one gets expanded, at the left side of the system the before expanded neutrino will contract becoming a neutron while at the right side the before contracted neutron will expand becoming an antineutrino. Neutron-proton and neutrino-antineutrino are Dirac

antiparticles because they are different subfields. Fermions and their mirror symmetry antiparticles respect the PEP because they exist at different, consecutive, times:

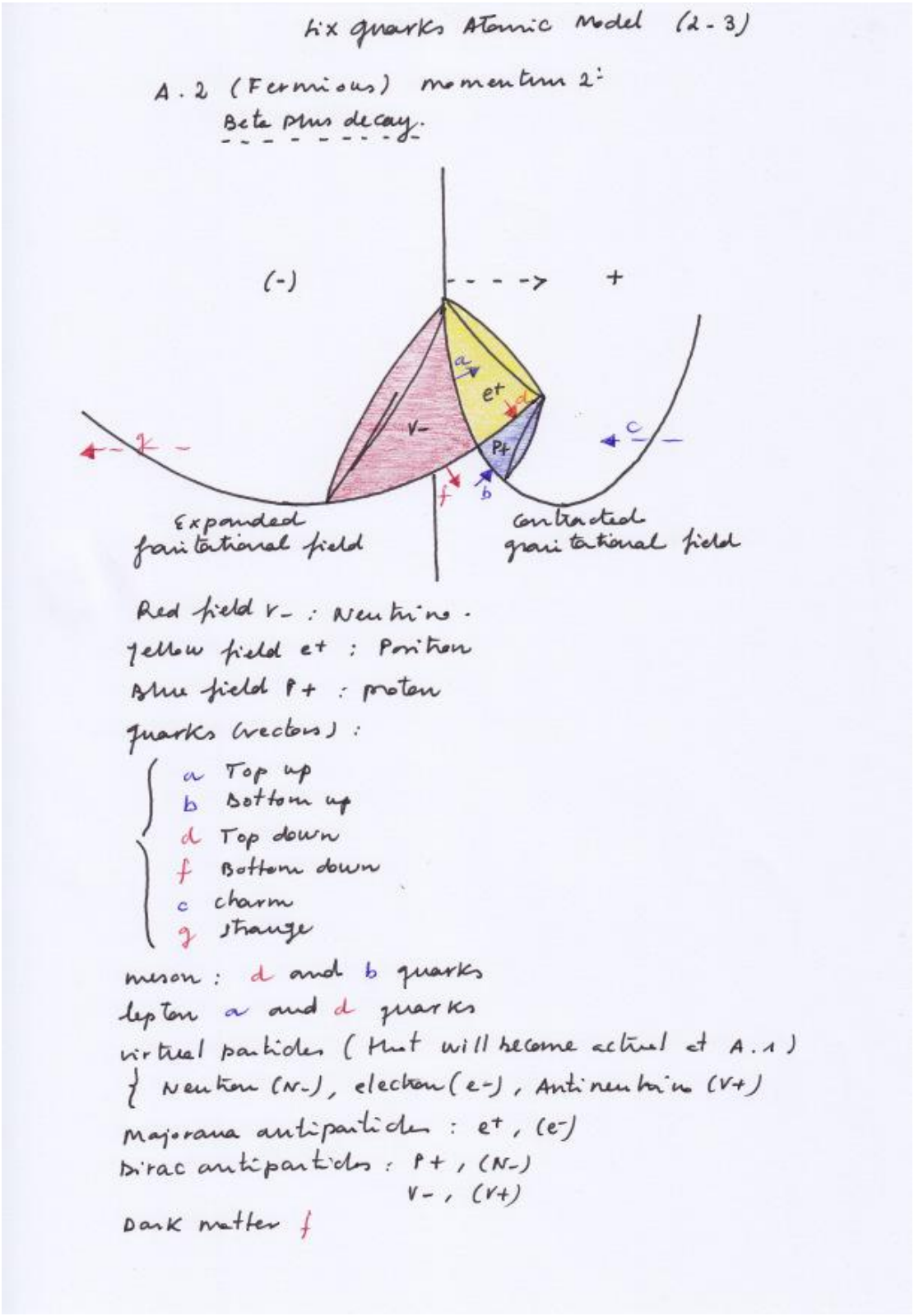
Fermions, moment 1:

(Opposite phases of variation, ruled by the Pauli Exclusion principle)

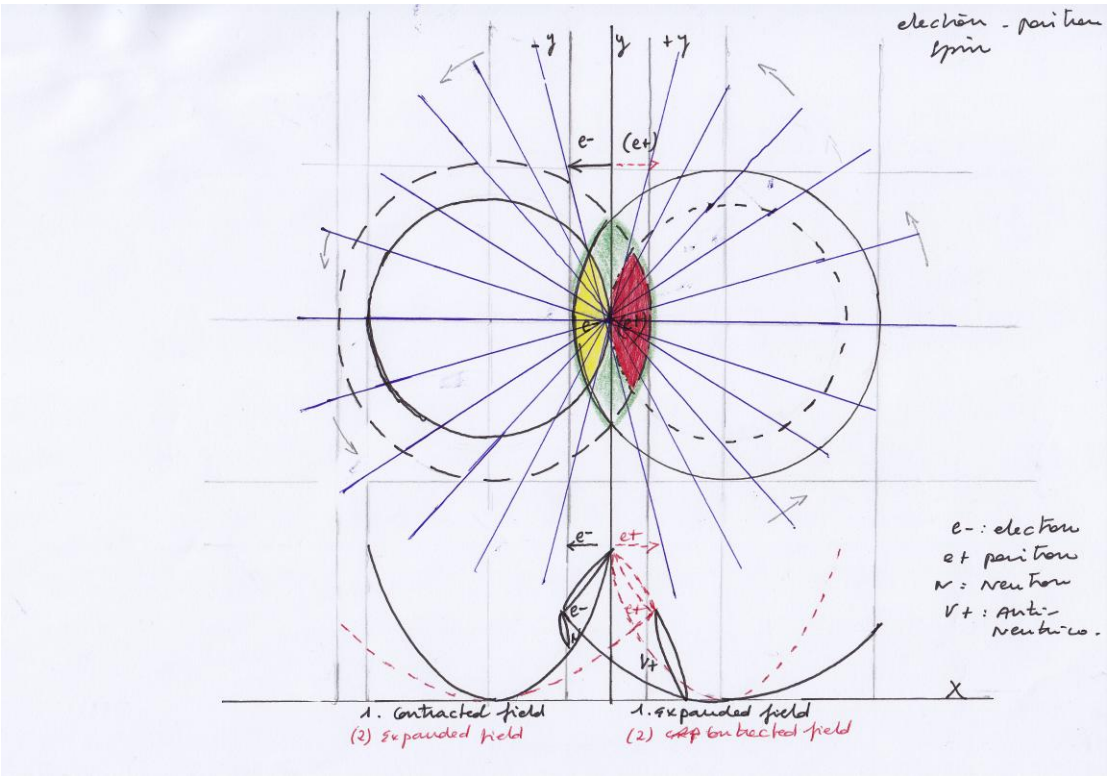


Fermions, moment 2:

(Opposite phases of variation, ruled by the Pauli Exclusion principle)



When the electron/positron subfield exist at the left side as an electron, we could say the positron field exist at that same time as a "virtual" positron, that is to say, as a subfield that does not actually exist at that moment but that will be actually existing a moment later when that subfield will move to the right.



B - Now if the phases of variation of the two intersecting fields synchronize, the fermionic subfields become bosons. Now, the electron/positron field is not displaced towards left and right but upward and downward receiving a double compressing force when the two intersecting fields contract at the same time. That upward pushing force will create the photon. When the two intersecting fields expand at the same time the ascending contracting field will descend becoming expanded and its inner orbital motion will decrease; We can speak then about a decay but also about a quantic interruption on the creation of the photon. But the discontinuity will be only apparent because it will be saved at the convex side of the intersecting system where there will be an inverted pushing force that will create and anti-photon.

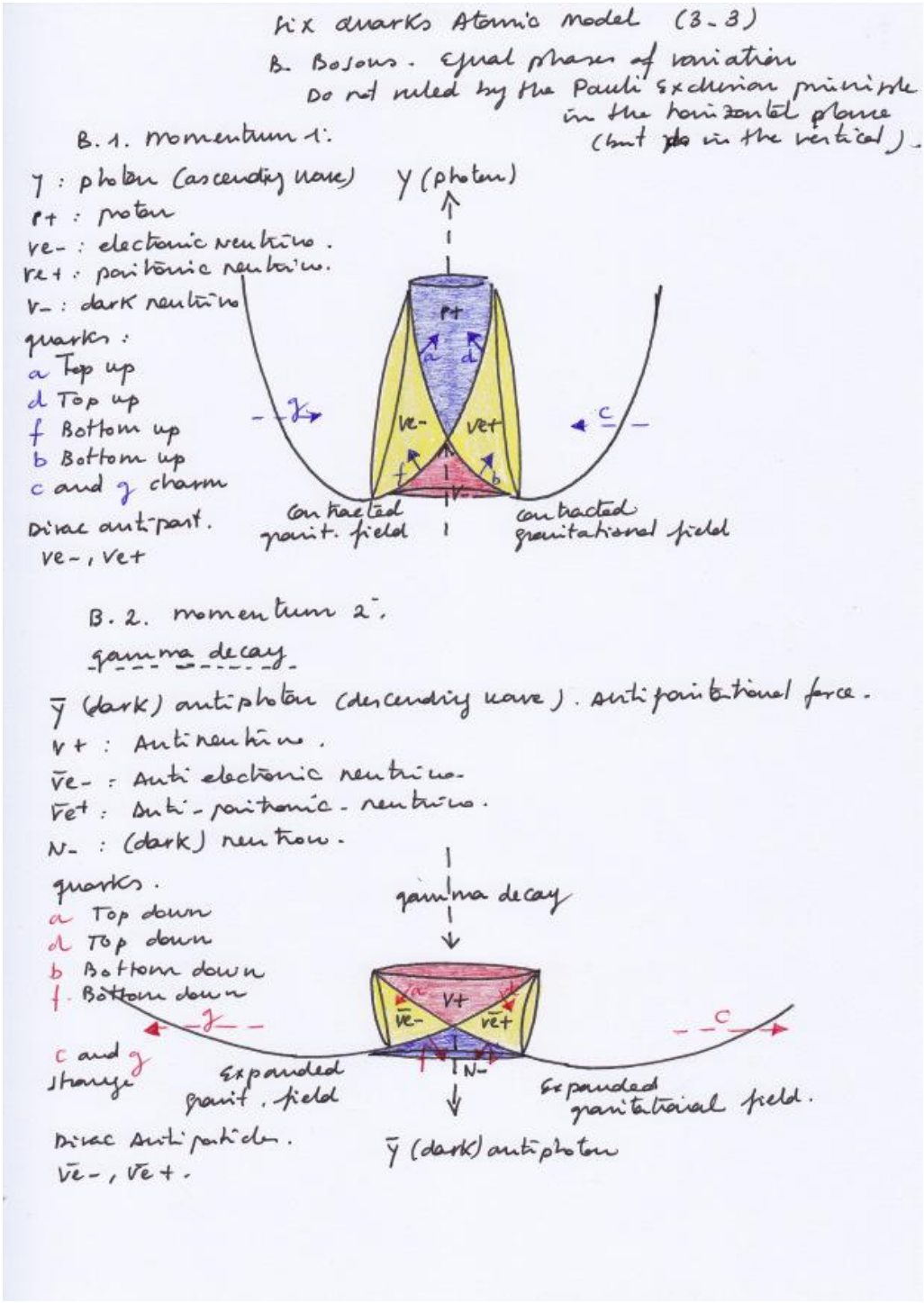
If we are observers placed at the concave side of the system, we won't detect the anti-photon that takes place at the convex side when the decay happens at the concave side, and we will speak about a dark, invisible for us, matter and energy.

This model can be seen as unconventional but I think it also can be explained in terms of six quarks, considering a quark as the pushing force created by the side of that intersecting fields when expanding or contracting. (Also I think the pushing forces I consider here to be supersymmetric quarks maybe could be explained as well in terms of supersymmetric "strings" when considering the intersecting fields as intersecting "branes").

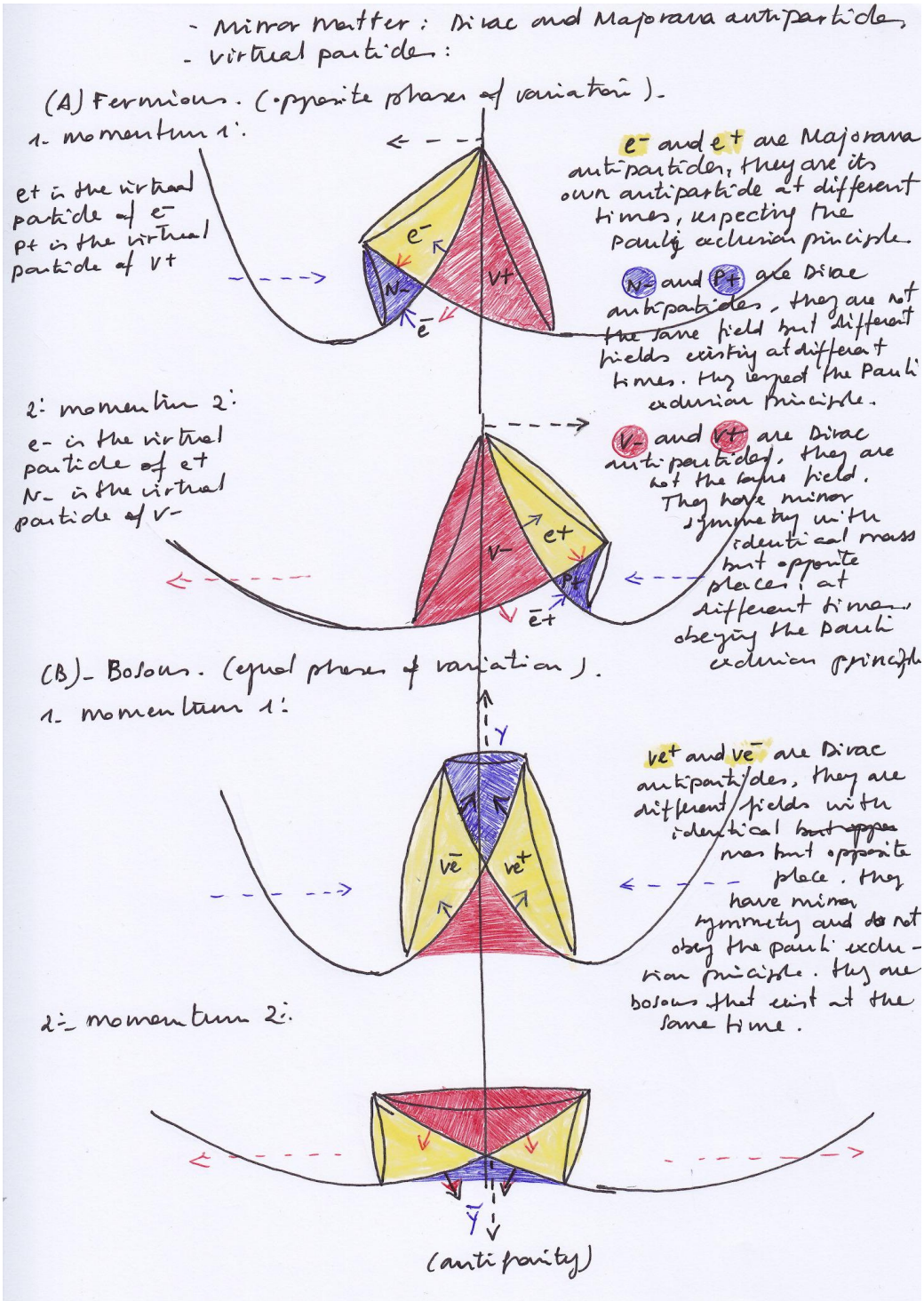
The strongest interaction would occur when the two intersecting fields contract at the same time, because the ascendant field gets contracted and its inner kinetic energy, its orbital motion, accelerates. Is that inner motion of the subfield shared by the two intersecting fields what creates the "chemical bond between them, becoming more difficult to separate or fold them from their convex side.

Bosons, moment 1 and moment 2:

(Equal phases of variation, not ruled by the Pauli Exclusion principle)

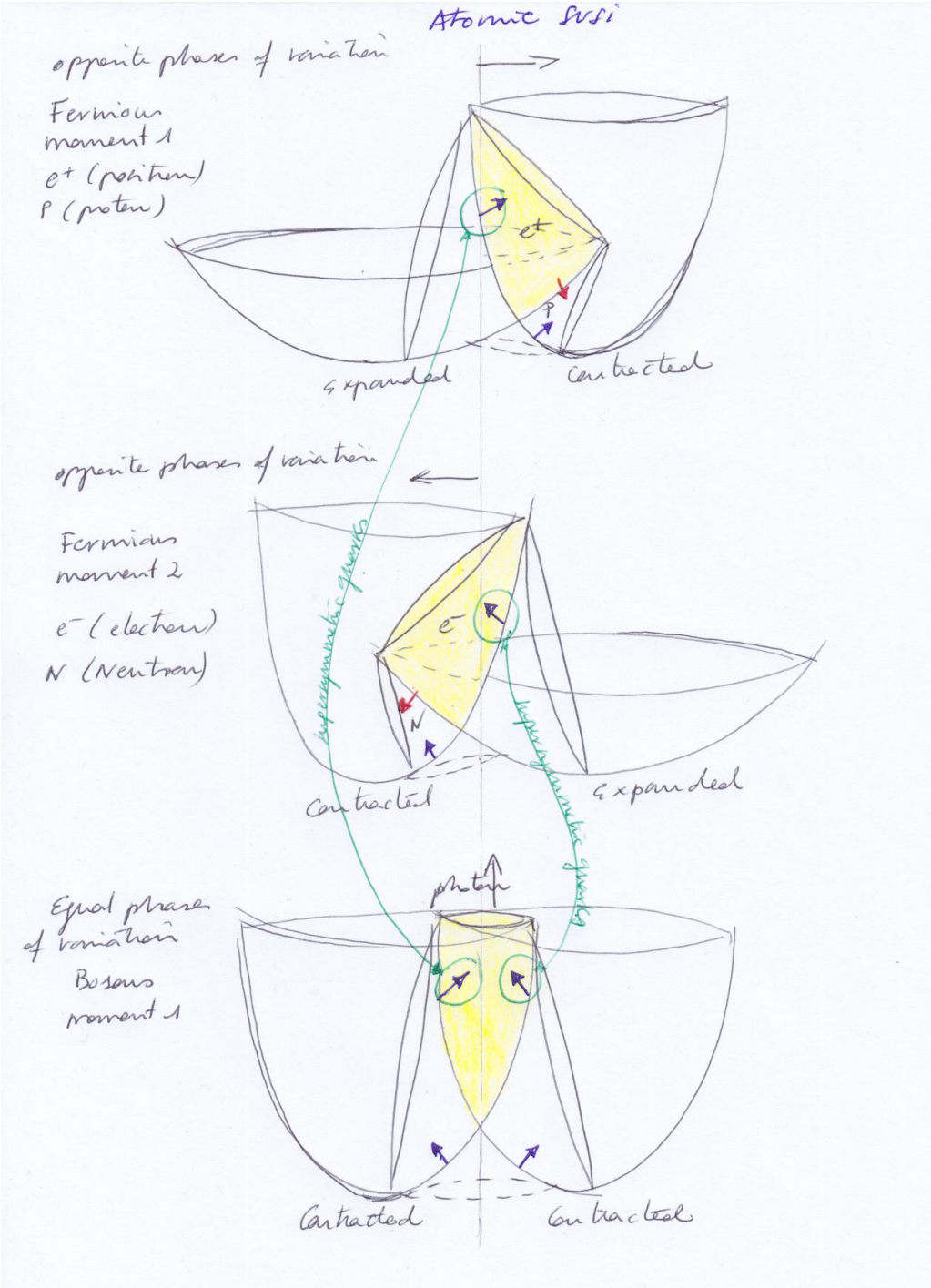


The below image represents in a same page the two moments of the fermionic and bosonic times. I tagged here the dark photon as anti-gravitational because its curvature will be inverted with respect to the curvature of the system. Gravity will be the pushing force (the old theory of Fatio and Le Sage) of "something" (galactic dust, solar winds, a Higgs field? I won't use the term "ether) in motion that creates the periodic curvatures when finding a dense spatial distribution, changing the curvatures when changing that density because of the friction. Maybe the two intersecting fields in this sense could be considered as two partially merged pilot waves.



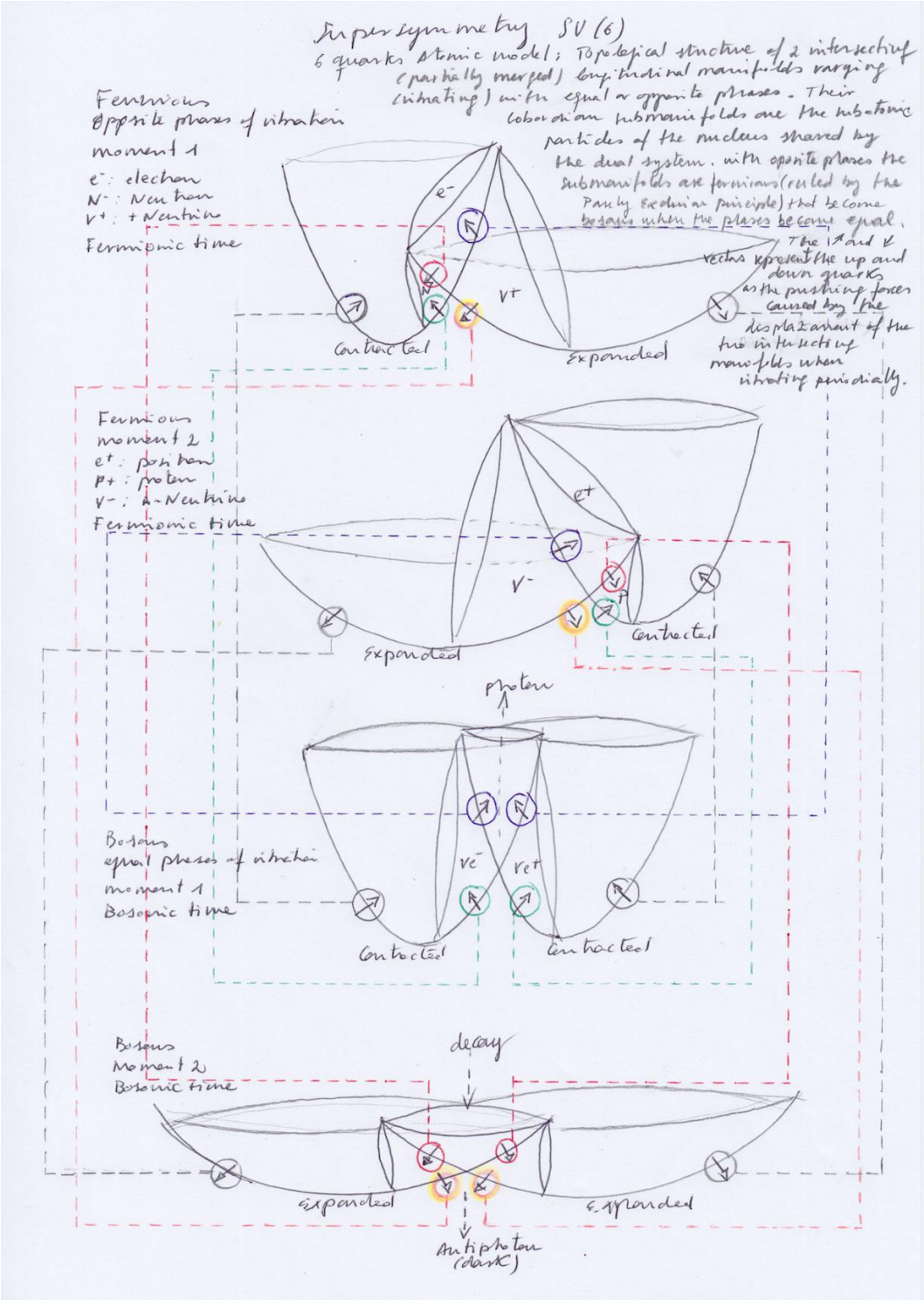
SUSI could be represented in this way: For example, when it comes to the fermionic

electron/positron, their identical but bosonic partner would be the supersymmetric field that creates the photon. Their shape are not identical, they cannot be, because the photonic field will be formed with a half part of the electron and a half part of the positron converging at a same time. It can be more easily seen thinking in terms of quarks represented as vectors on the below picture. The fermionic quark of the positron at the fermionic moment 1 and the fermionic quark of the electron at the next fermionic moment 2, concur at a same bosonic moment 1 when the phases of variation get equal and the two intersecting fields contract:



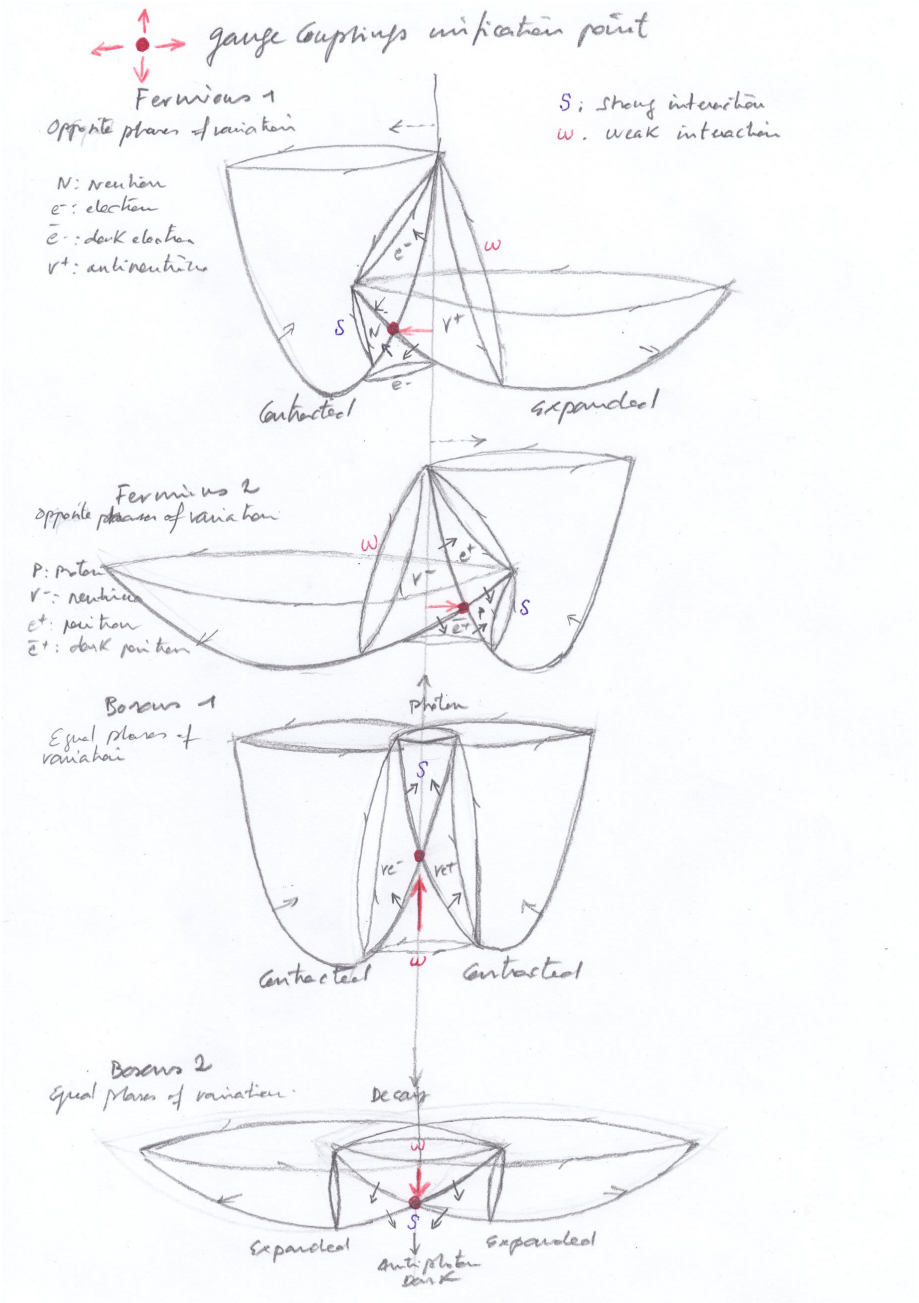
This model can be explained in terms of six quarks (in terms of quantum chromodynamics), considering here a quark as the pushing force created by the side of that intersecting fields when expanding or contracting.

In this sense, I think the SUSY only can be found when thinking about quarks, considering the atom a topological structure whose spaces and subspaces experience periodical transformations, becoming those subspaces fermions (when the dual system vibrates with opposite phases) or bosons (when vibrates with equal phases).



In my opinion, relativity should not only consider the motion of an object inside of a space during a period of time, its velocity in a static space, but also the periodical variation of the space itself, the mutation of its phase of variation, and the relation of that vibrating space with the varying spaces it is connected to form a spatial-temporal system, whose variation conform the shape and behaviour of their shared subspaces. It should consider at least two temporal dimensions that converge and diverge periodically.

Being the fermionic subfields the same as their correspondent bosonic partners, they care not identical when experiencing the bosonic or fermionic, but at both the bosonic and fermionic times the quarks of the system will remain identical. So I think what physicists should look for supersymmetry in the already known particles is only the fermionic and bosonic quarks that must be spatially symmetric at different times.



One of the reasons supersymmetry is being looked for is because it would represent a unification of the so-called "gauge couplings". I think the gauge coupling would be the meeting point where the two varying fields intersect to create their shared submanifolds. The different fermionic and bosonic strong and weak interactions would be structurally unified in this model in that same intersecting point that moves towards left or right in the case of fermions and upward and downward in the cause of bosons. (see the above figures).

On the other hand, one of the predictions made by the standard model is the decay of the proton, which - as supersymmetry so far - has not been observed yet. As I explained before, I think the decay of the proton occurs periodically every time a neutron gets formed at the left side of the center of symmetry, and an antineutrino appears at its right side. An instant later, when the antineutrino contracts becoming a proton at the right side, the left-handed side neutron will decay (expand) becoming a neutrino. (The neutron was the antiparticle of the proton, existing at different consecutive moments).

With respect to the maths behind the system, I think this dual atom would be a topological structure because its structure remains the same – that's why it explains supersymmetry - although its shape and behaviour vary periodically with time.

I think it can be thought as Riemann space. Riemann spaces were used to build the quantum model but I think from a misinterpretation of what the intersecting surfaces were for Riemann: they were interpreted (I think by Hermann Weyl mainly) as overlapping surfaces instead of being considered as partially merged manifolds that create new and shared sub-manifolds.

I also think the model can be seen as cobordian manifolds because the subfields are cobordian with respect the two intersecting fields that created them.

A part of the two temporary dimensions, it would be necessary to consider as well the different spatial dimensions of the subfields that are non commutative with respect to the spatial dimensions of the intersecting fields (by example, the X coordinate of the Neutron field will be the Y coordinate of the Left intersecting and contracting field).

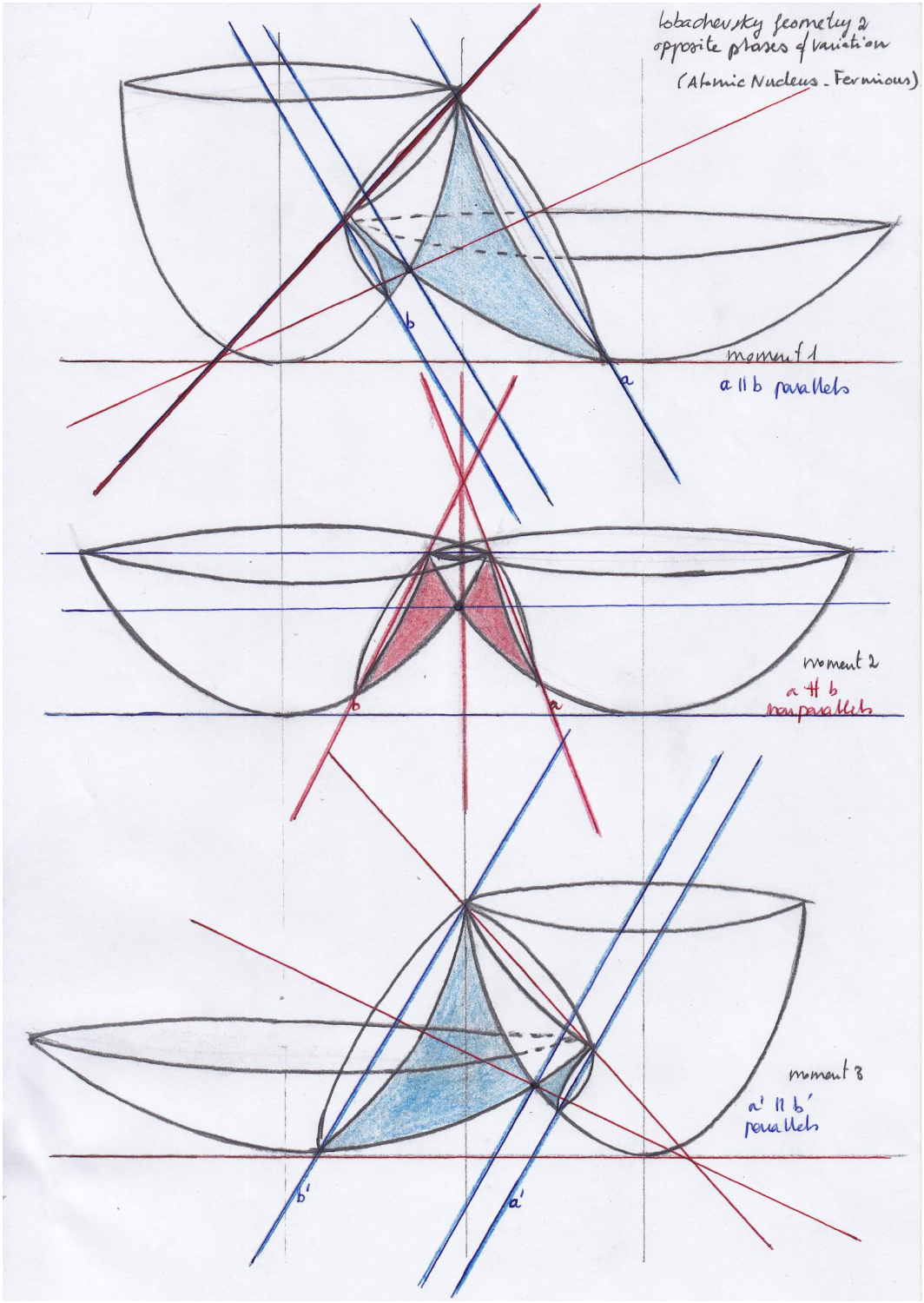
The structure can also be seen as a possible expression of the Lobachevski "Imaginary" geometry being determined the angle of parallelism and non-parallelism of two mirror symmetric lines by the periodical fluctuation of the system. Here the hyperbolic parallelism is not related to a line that gets curved but to the straight lines that oscillate periodically; those oscillating hyperbolic straight lines will be the spatial coordinates of the subfields of the system.

When the angle of inclination of one of those subfields changes, the subfield placed at its mirror opposite side will change as well because they both are part of the same system. But the way they both will oscillate and so their angle of parallelism will change depending on if the phases of variation are fermionic or bosonic:

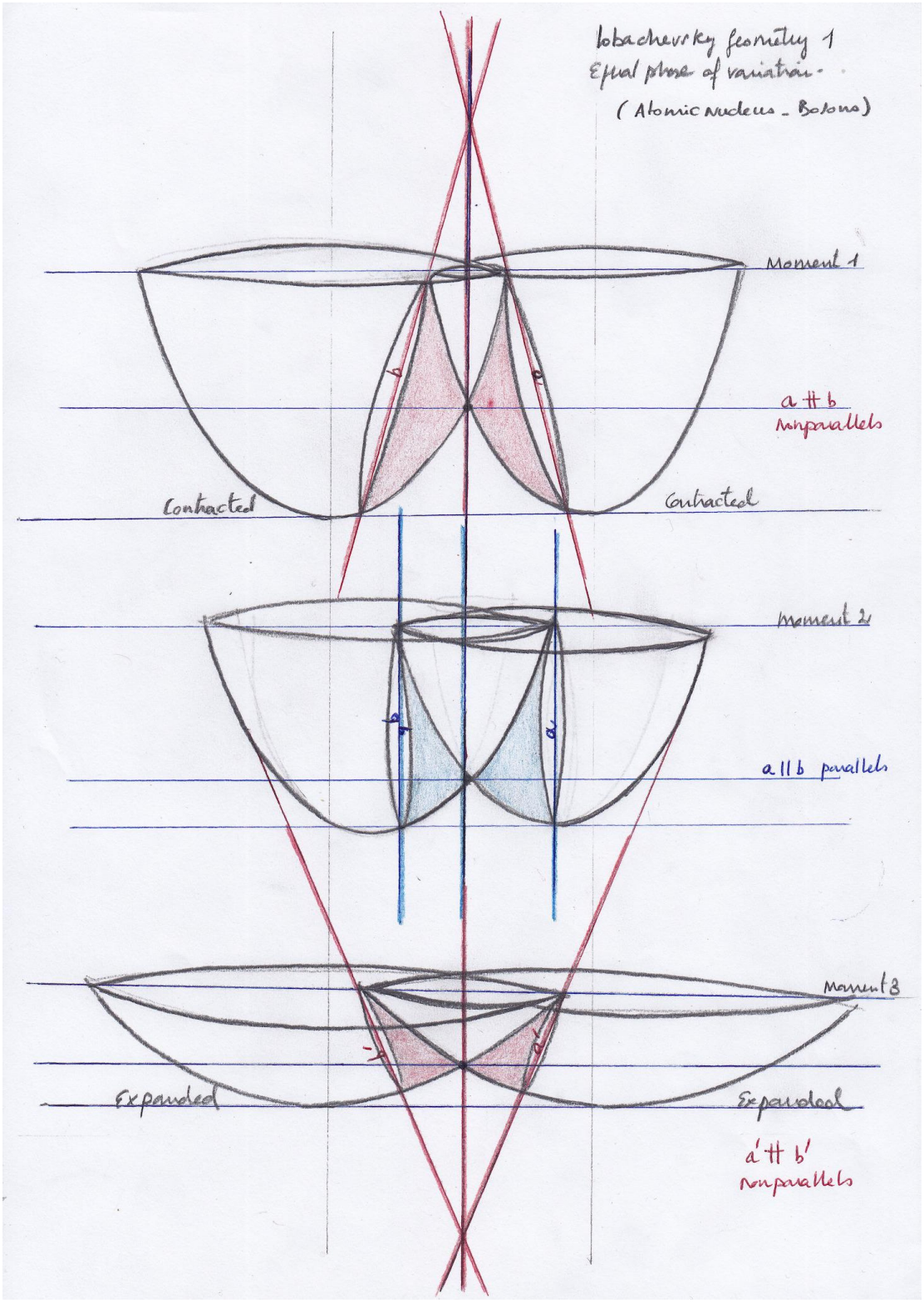
When the angle of inclination of one of those subfields changes, the subfield placed at

its mirror opposite side will change as well because they both are part of the same system. But the way they both will oscillate and so their angle of parallelism will change depending on if the phases of variation are fermionic or bosonic:

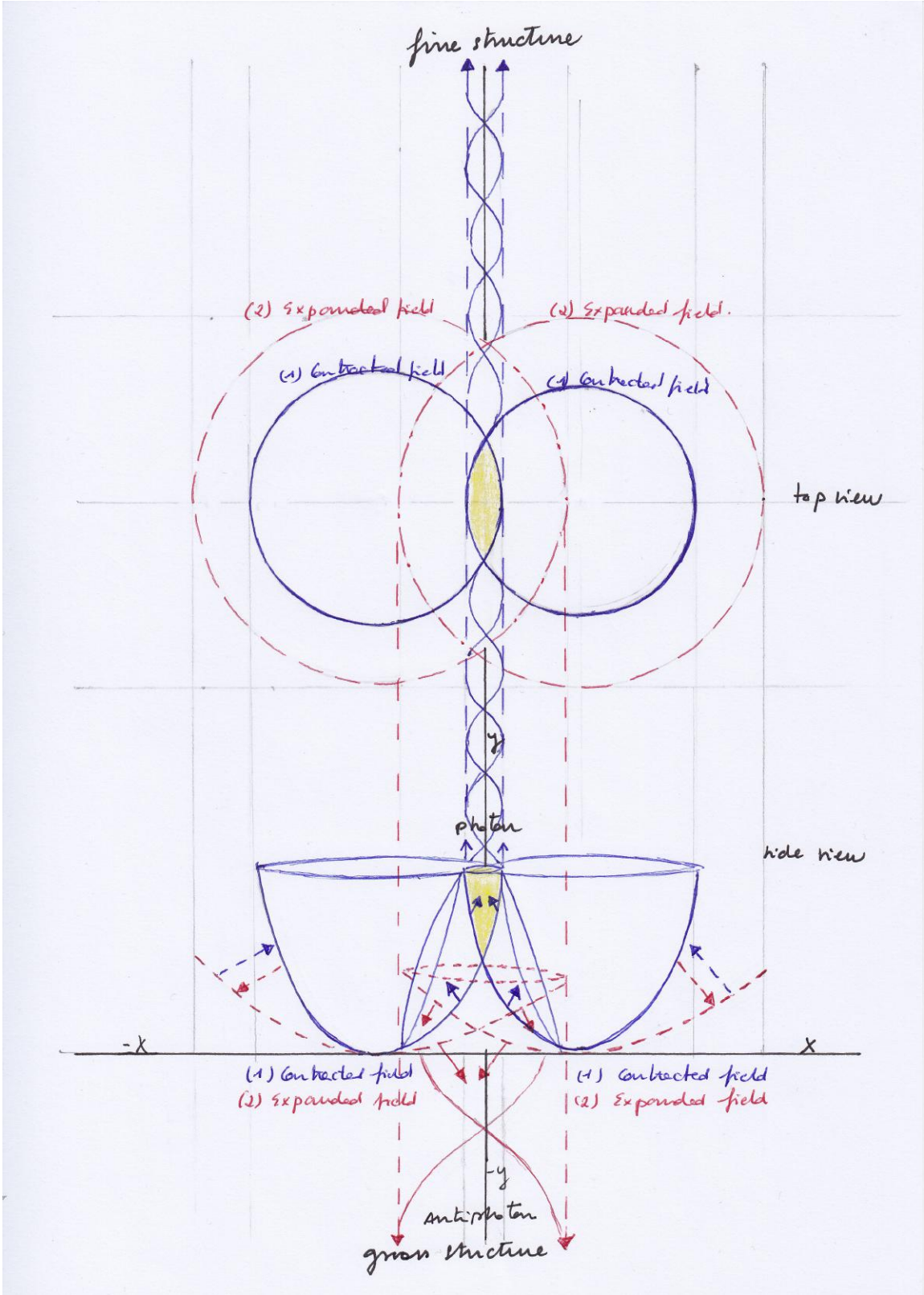
Fermionic Lobachevski imaginary geometry:



Bosonic Lobachevski imaginary geometry:



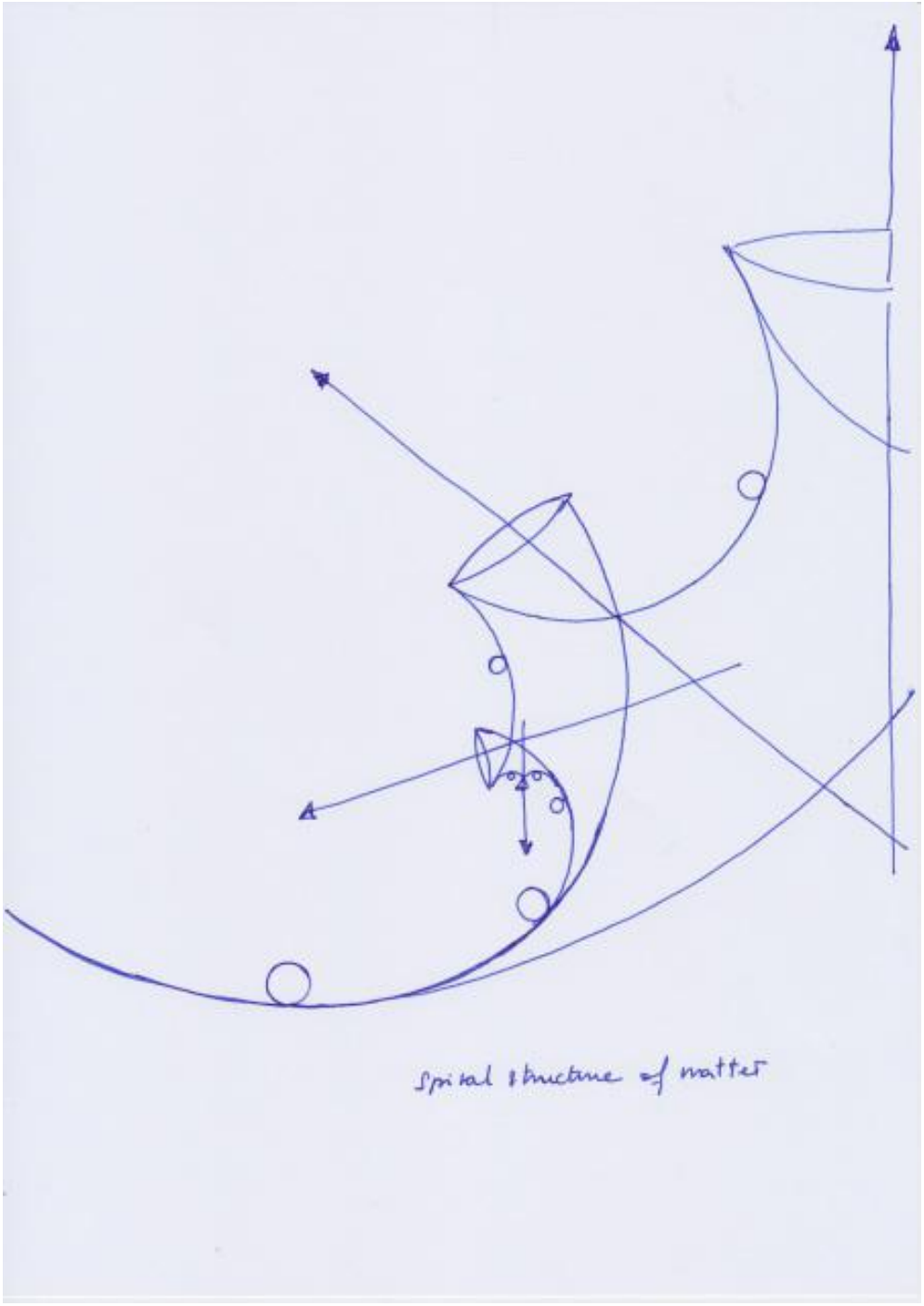
On the other hand, I think the model would let naturally understand the already known "entanglement", when being understood as the consequence of this dual system knotted by its partial fusion or intersection.



I think this hypothetical model could be considered as a multiverse model but here the "universes" that create the sub-universes are not only parallel, they are intersecting - partially merged - and they vary periodically, they vibrate.

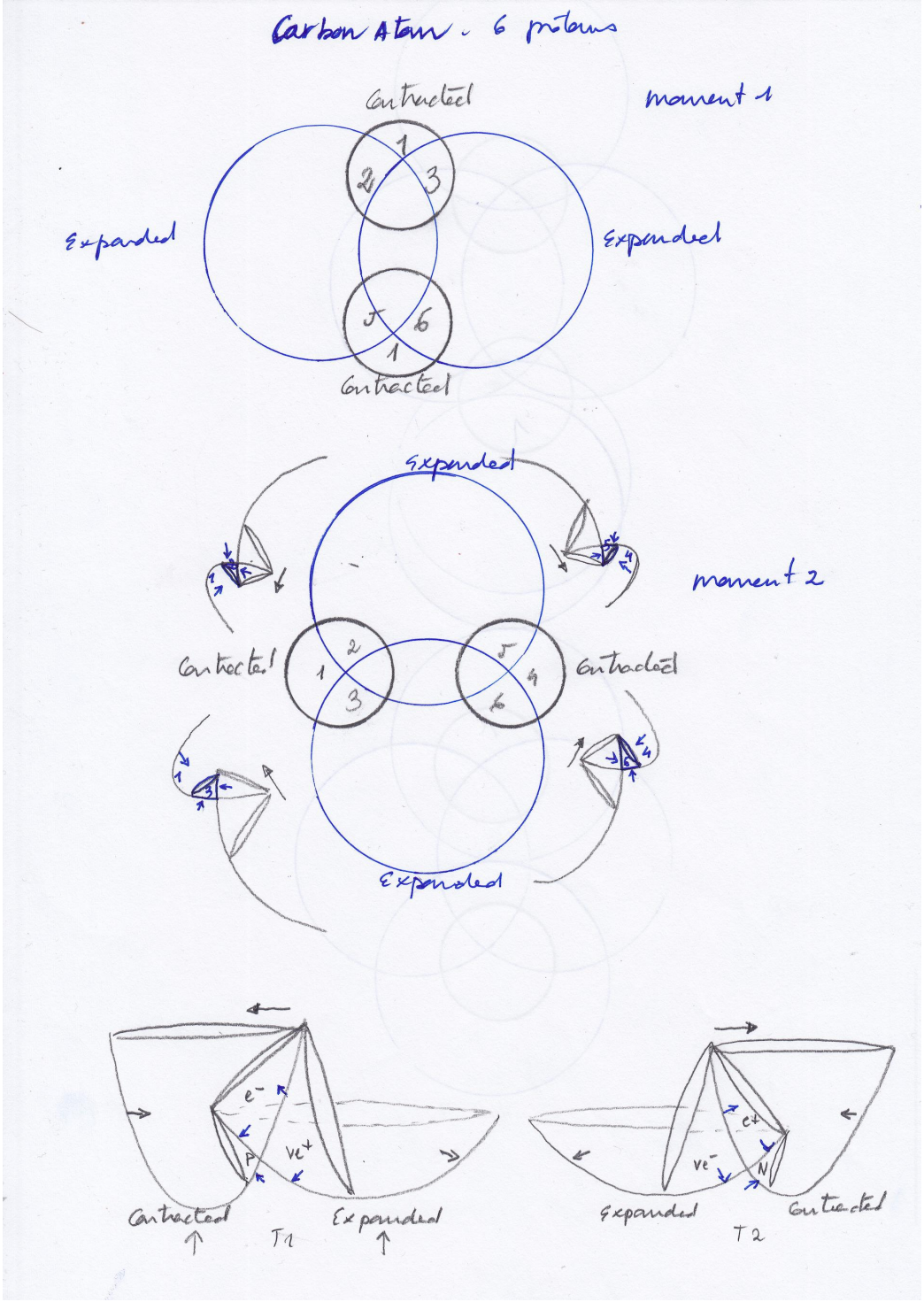
We can consider every pulsating photon as a "big bang" - when the two intersecting fields contract at the same time, that will be followed by a "big silence" when the two intersecting fields expand at the same time.

The intersecting fields and subfields could be placed in a spiral way towards the infinitely big and the infinitely small:



It also can be considered as a multiverse model – a many interacting fields model - but here the "multiverses" that create the multi sub-universes are not only parallel, they are intersecting - partially merged - and they vary periodically, the vibrate. We can consider every pulsating photon as a "big bang" - when the two intersecting fields contract at the same time, that will be followed by a "big silence" when the two intersecting fields expand at the same time.

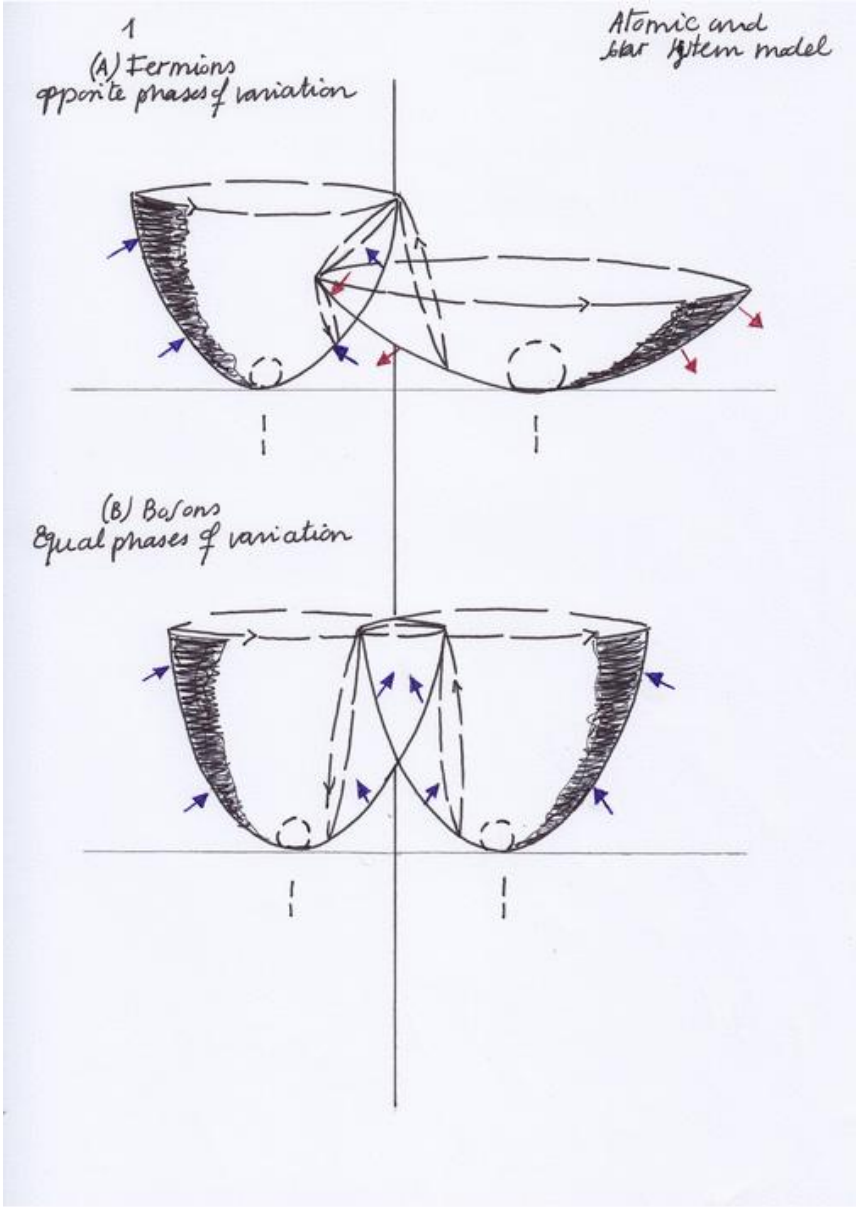
The below picture would represent a carbon atom on this hypothetical model:



The Casimir forces would be the pushing force caused by the displacement of the non intersecting sides of the two intersecting fields when contracting, coming from outside of the nucleus to inside.

Finally, the below link launches a rudimentary animation that would be an approximate representation of the model in motion. The gif does not represent the supersymmetric transformation the fermions into bosons and vice versa (they appear in separated systems) and it does not represent either the circular rotation of the whole system around its central axis.

https://curvaturasvariables.files.wordpress.com/2018/11/atomicmodel1.gif



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Nov 10, 2018. Madrid, Spain