Utilization of time reference signals by particles

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Abstract

Particles need to sense one another before exchange of field particles. There can be a time difference between the instance the particle sense one another and the instance field particle starts its travel toward the other particle. Due to Heisenberg's Law of Uncertainty particles need to synchronize their timing of actions. Synchronizing of timing is not feasible without existence of time reference signals.

1. Sensing other particles

Two charged particles exchange virtual photon during attraction or repulsion as shown in Figure 1. Assume a charged particle *P* which is incapable of sensing other charged particles nearby. To be able to repel or attract other charged particle, Particle *P* will have to keep on emitting virtual photons in different directions even when there is no other charged particle exist in the surrounding space. This way, charged particle *P* will lose a lot of energy without hitting any other particle. Sensing other particle before emitting field particle is more energy efficient model in which the charged particle do not waste their energy. Refer to Figure 2, which shows the interaction between two charged particles. At time t_1 the first particle senses the second particle. After sensing the second particle, the field particle is released at t_2. The time difference between sensing and the release of the field particle is given as:

$$\Delta t = t_2 - t_1 \quad (1)$$

Assume an interaction between two charged particles *A* and *B* in which a virtual photon travels from particle *A* to particle *B*. The information that particle *A* requires to be able to send a virtual photon to particle *B* is:

- Position of particle A at time *t*1
- Velocity of particle *A* at time t_1
- Direction of motion of particle *A* at time t_1
- Position of particle *B* at time t_1
- Velocity of particle *B* at time t_1
- Direction of motion of particle *B* at time t_1

The above information, particle *A* can use to calculate its own and the particle *B* position at time *t*2 . In other words, there is need to know velocity and the position at the same time for both particles *A* and *B*. If Heisenberg's Law of Uncertainty is valid, both the position and the velocity cannot be determined accurately at the same time. The only valid possible solution to this problem is:

- Sense particles travel at a very high speed and acts as a bond creation messages.
- Time spent to prepare field particle(Δt) is zero or fixed.
- The sense and the field particles are able to tunnel through the barriers which come into the way to the destination.

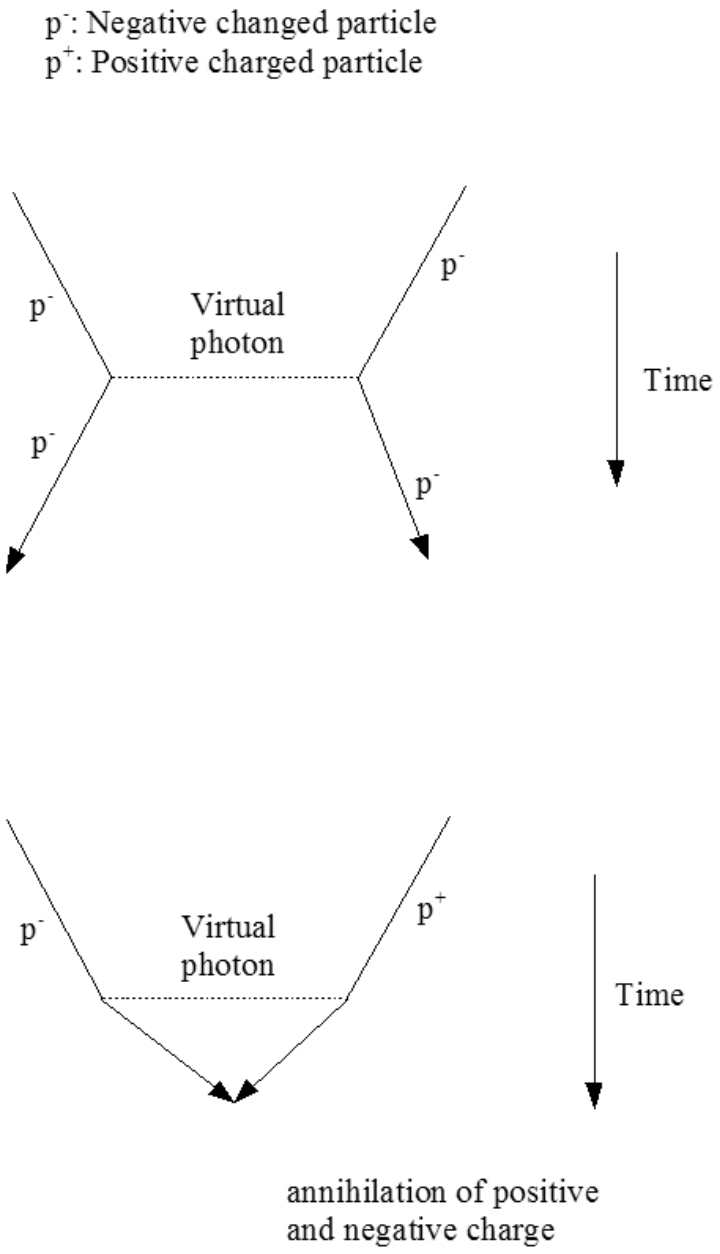

Figure 1: Exchange of field particles between charged particles

p^-: Negative changed particle
p^+: Positive charged particle

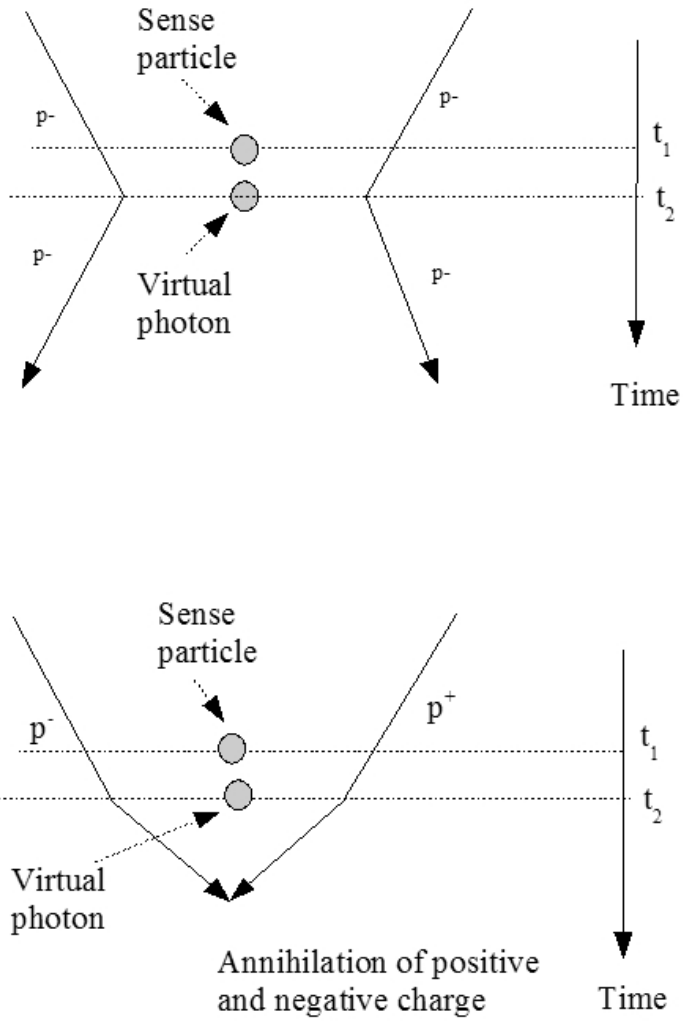

Figure 2: Exchange of the field particle between charged particles

1.1 Zero field particle preparation time

For any particle, zero time to prepare and send a field particle which in is some cases quite massive is unthinkable. Any mechanical system around us is expected to spend some time to prepare and target a force toward a specific direction. The only possibility is that the both particles who want to interact, remain in a fixed position for a fixed duration *t*, which is sum of :

- Time required to prepare a field particle.
- Energizing the field particle.
- Setting the direction of the field particle.
- Releasing the field particle.

The fixed position here can refer to two types of different situations:

- Both particles are in fixed state at rest.
- Both particles move with a fixed momentum in a fixed direction, which is universal value for all interacting particles.

Figure 3 shows the Feynman diagram showing the suspended state during which the particles remain in a fixed position, until the field particle is exchanged. For both particles to remain in a fixed position is a simpler solution compared to the second possibility in which each particle moves with a fixed momentum and the new position needs to be calculated by each particle. Furthermore, the particle cannot remain in a fixed time duration unless there is a common time system being used by the both particles. The life on the earth is adjusted according to the duration of day and night on the earth. The motion of the earth around its own axis and around the sun creates day and night. If human being is considered a collection of particles, the body working is synchronized with the body clock and the body clock is synchronized with the motion of earth around the sun and also around its own axis. This work extends this observation and suggests that the particles uses the motion of the cosmological bodies in their proximity to coordinate their actions. So it is suggested here that cosmological bodies have two very important roles in the functioning of the particles:

- Cosmological bodies act as a reflector of gravitons toward particles.
- Cosmological bodies become the path of the time signals which help the particles synchronized their actions.

How cosmological bodies distribute time signals is unknown. However, time signals in the electronics system are generated by an oscillating crystal. If this model is applied to the particles, it can be said that all the particles that show a distinct behavior, oscillates a small part of their matter and uses it as a time clock. The oscillating part is synchronized with the time signals coming through the cosmological body in proximity to which they exist. It can be said that the reason all bodies have a vibrating motion is due to the reason that they need a common clock to synchronize their actions. However, vibrating the whole mass to have a time signal can be regarded as a low energy efficiency solution. Only a small part vibration can also act as a clock with less energy consumption.

1.2 Very high speed of sense particles

According to Heisenberg's Law of Uncertainty, the particle position and the velocity cannot be determined accurately at the same time. The sense particle travels toward the target and returns back, thus making two equal distance trips. If the sense particle has limited speed, the time spent in such trips will not be zero and the both particles which are interacting will move to new locations, which cannot be accurately determined. Thus, the first condition for the successful working mechanism is that the sense particles travel at very high speed. As discussed in the previous

subsection, both particles need to be in a rest position for a limited period of time. To be able to do so, both the particles need to form a bond with at least these steps:

- Once a sense particle strikes a target, it needs to tell the target that it needs to stay in its position for a specific period of time and wait for the field particle. Or when a particle is stricken by a sense particle, it decides to stay in its present location for a fixed period of time.
- The sense particle once return to its origin, tells the origin that a particle has been sensed and is waiting for the particle.
- All above is only possible, when the sense particle is not just carrier of mass but also acts like an information message. In other words, the particles are interacting with complex messages, before mediating force through the field particles.

1.3 Tunneling through barriers

It is believed that force between two charged particles is mediated through exchange of field particles. Refer to Figure 4, the field particle needs to travel between proton and electron. In larger atoms, proton and neutron are confined to a limited three dimensional space. The neutron can become the obstacle between proton and electron, preventing the flow of field particle. The field particle should be able to tunnel through the mass that exists between its origin and the target. It can happen only when the field particle is aware of its target and avoids being absorbed by other neutron. Field particle needs to have following capabilities:

- Field particle is a carrier of energy.
- Field particle is aware of its destination or in other words contain the destination address.
- Field particle is capable of distinguish between target and non-target particles.
- Field particle is capable of controlling where to deliver the energy it contains.

Therefore, field particle can be treated as:

- Traditional field particle
- WITH information possessing capability.

p^-: Negative changed particle
p^+: Positive charged particle

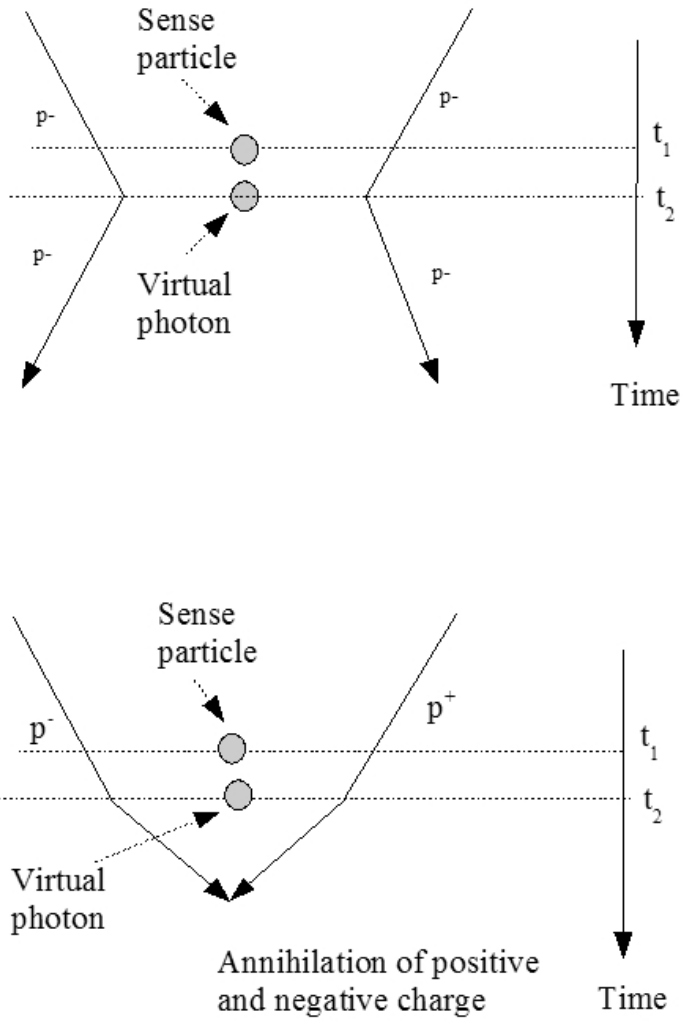

Figure 3: Particles in suspended state after exchange of the field particle

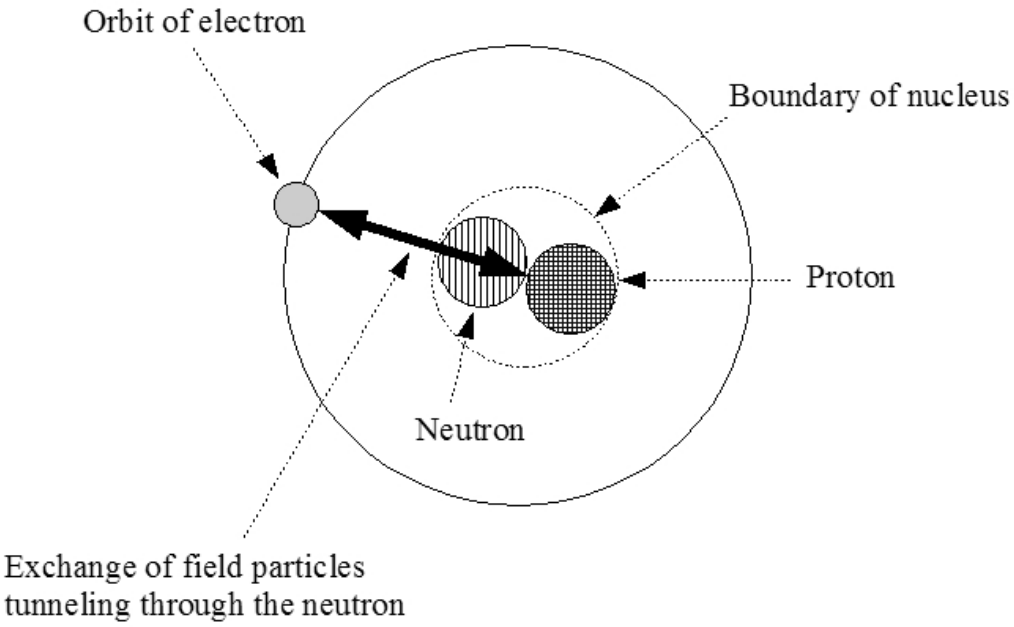

Figure 4: Tunneling of field particles

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