

# Fusion Energy: On the track of a different philosophy and solution

Joao Ferro (✉ [ferrojpf@gmail.com](mailto:ferrojpf@gmail.com))

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## Article

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# Abstract

When two (or more) nuclei fuse, to form a heavier element, a known quantity of energy is released. The process seems easy to describe, at least to some degree. Today, technological development on the subject has introduced applications in many areas. Even so, there are some challenges before we can be able to provide energy by an appropriated fusion process: high needs of power, plasma confinement issues, heavy equipment, etc.

The present idea intends to show a different view. The author calls, in a broad sense, a conceptual thesis, and it has the natural language as the principal tool. The author either explicitly or implicitly discusses the space-time fabric, double-slit experiment, and other concepts like non-duality. One nanoapparatus draft with the purpose of being in the scope of near future research closes the picture.

## 1. Introduction

Fusion, with the production of a large amount of energy, is a technology that can be used in an advantageous way by society and be a factor contributing to the natural balance of the environment.

This study aims to present a possible compromising answer about a different physical-theoretical system. The model is supported by a conceptual thesis/thought, precursor of a probable more wide-reaching symbolic-informative relational theory.

The idea under test is that atomic particles can be fused not by a process where the Coulomb barrier is overcome, but the particles, under certain conditions, or rather, by altering and/or maintaining certain properties (connectedness), can break the space-time fabric, find themselves at an undefined point (nondual and/or suspended from their space-time frame), and finally return to the real state, whose paradigm rests on a distinction of the particle properties, with the release of energy.

*General process.* It is considered one antagonistic property of the particles to be resolved. If the environment is, say, equivalent, and the particles are placed in a right configuration in the apparatus, then one opposite property remains, and the particles can start the fusion process. (One antagonistic property is the way to say, yes and no – with the purpose of producing nonduality in a conceptual approach.) After nonduality occurs and after the return to the three-dimensional frame, the particles are approximately one, i.e., they become, by principle, bonded.

*Process: rupture of the space-time fabric.* The particles are disconnected from the space-time fabric of numerical quality. (Space-time is considered intrinsically of numerical quality.)

As particles start to become identified as one, which means a rupture of space-time: the numbers of their initial 3D space-time tend to be equals conceptually – the concept of an independent number ceases to exist.

*Process: Non-duality.* An element exists with property (or response) that eliminates antagonism: it induces in the system a conceptual change. This conceptual change is viewed as the loss of differentiation of the particles – particles are identified with a single property (in this case study, distance – Fig. 1). What the author calls weak and strong reference (Fig. 4), are fundamental for this change to happen.

Applying the system of the apparatus (which will permit such an all process) by setting it for initial conditions, the particle(s) return to the three-dimensional frame.

## 2. Objective

One different approach to the fusion process is reported with the aim of further research to take place in the labs. For the case:

- o The paper introduces some philosophical concepts into the physics of nuclear fusion.
- o A first draft of a nanodevice for the production of energy by the fusion process is presented.

## 3. Method

Apart from what was said above, the qualitative approach can be resumed by the following.

The double-slit experiment was revisited considering a role for information. It results a simple scheme shown in Fig. 1, 2. Accordingly, space-time was resolved as two dimensions plus time in a conceptual understanding or description of it. With this view of space-time fabric, the idea of a particle losing its time by suppressing its Z-axis starts the journey to design the device. The device accomplishes the points written for the process. A representation of the device and some conceptual notions of the process can be viewed on Thought Results.

## 4. Thought Results

The double-slit experiment interpretation: particle nature, and not a wave, is considered to act all the time of the experiment. The particle, behaving in this way, has mass. The informational line has constant speed. (Particle's maximum kinetic energy before a conceptual change occurs?)

Below, one can observe a particle, changing from the most intuitive path to a less intuitive path at the node and due to its lower initial velocity.

Space-time fabric with three dimensions: space with two dimensions, plus time, in a pure conceptual approach. The Z-axis and time are identical concepts considering that one can determine the position, having knowledge of the initial velocity, time, and two-dimensional path.

If space-time is suppressed, the connectedness between particles changes. This is achieved by returning to 0 on the Z-axis of the nanodevice, where the initial conditions of the particles are again set.

*Nano-device draft.* A simple scheme of a device: the device carries particles, and two references are built: a weak reference (WR) and a strong reference (SR). The process starts with the top of the coupled parts in position P1. SR and WR switched on. As soon movement 1 happens SR decreases. At position P2, SR switches off, and movement 2 takes place (Ring and WR are displaced at the same time) with WR intermittent. When Ring arrives at position P1, WR switches off and moves in the opposite way (movement 3) until it stops at P1. The SR and WR switch on.

The atoms of type A are differentiated by the intervention of the type A ions, meaning the electrons, conceptually, distinct of the nucleus. It is now considered that the atoms do not need to be ionized.

The energy can be controlled by the quantity of atoms to be used in the process.

The interactions between ions and atoms must be well identified, and several solutions can result. The correlations between atoms also have to be well studied.

## 5. Discussion

The double-slit experiment is an exercise for the purpose of building the nanodevice. No experiments (simulation or real) were done. The thought experiments are well reasoned. The main doubt is whether the expected results are in accordance with the well-distributed wave function results.

The device is novel in theory and itself represents a possible shift in the understanding of some important concepts. There is no reference to the materials to be used (its design only must be observed after other positive conclusions of this study). With the use of the latest technology, it is possible to achieve a good result.

The proposal presented must be the subject of further research, and experimental results are of extreme importance.

## 6. Conclusions

A coherent model of a fusion energy device and all considered different theories seems to work conceptually. Some of them are not fully developed.

The language used lacks formal aspects but is important to design the device.

In the author opinion, is an advantage to present this article at this stage, once one can prove or disprove the contents, and contribute to a better understanding of Fusion and Nature.

## Declarations

## Acknowledgements

I due my thanks to all my professors and others that I met along this formation journey.

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## Author Contributions

João Pedro Ferro is the single author, and there are no external contributions.

## Funding information

Due to the characteristics of the work that has been done, no list of financial support exists. It is worth emphasizing that this is an individual, theoretical study with the objective of pursuing its development in the laboratory.

## Data availability

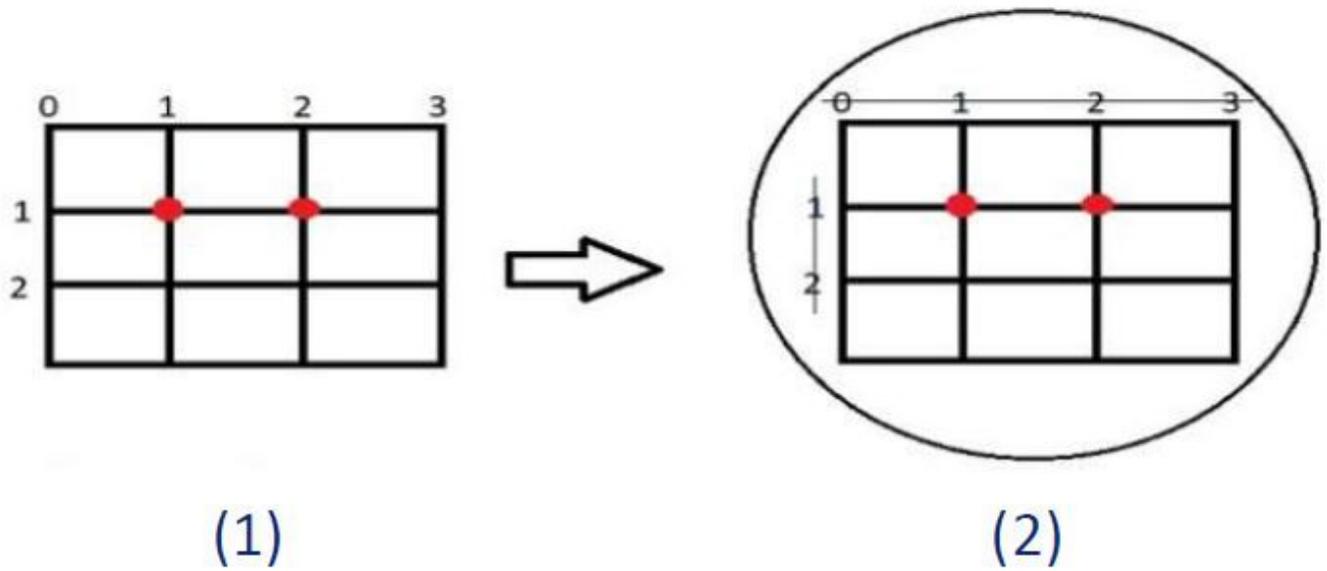
Data availability is not applicable to this article, as no tangible data were created or analysed in this study.

## References

References are not applicable to this study as it is entirely original. Only general previous reading was made.

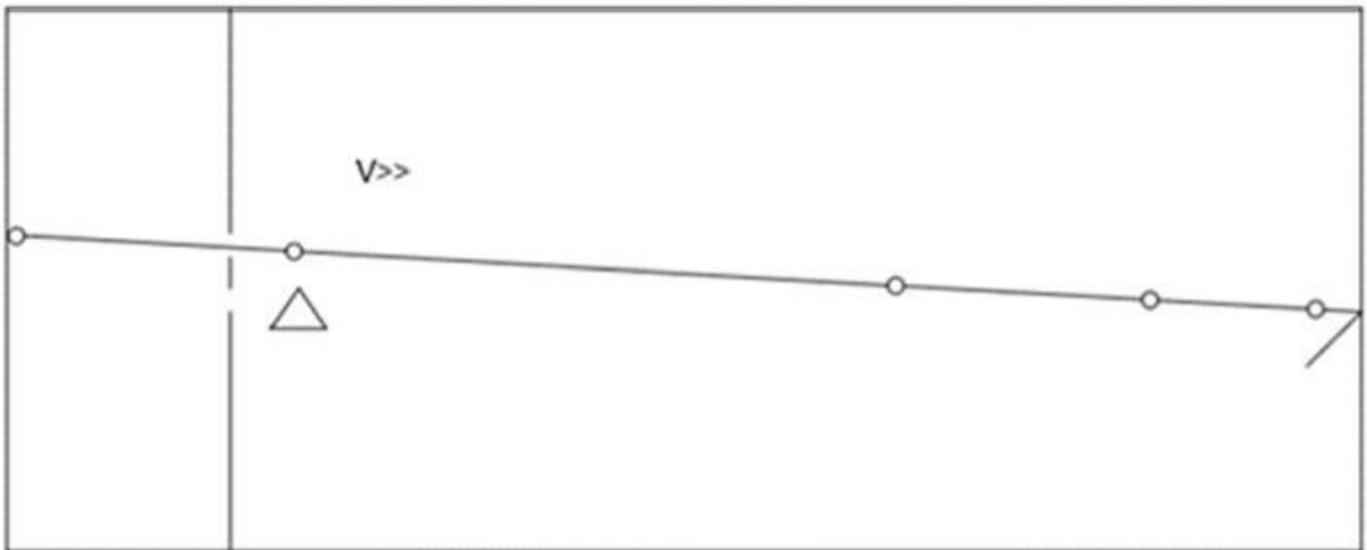
Please note that 2+1 space-time fabric has been worked in the study of black holes and other cosmological studies; there exist some notions of space-time fabric rupture, but not systematised to become a theory.

## Figures



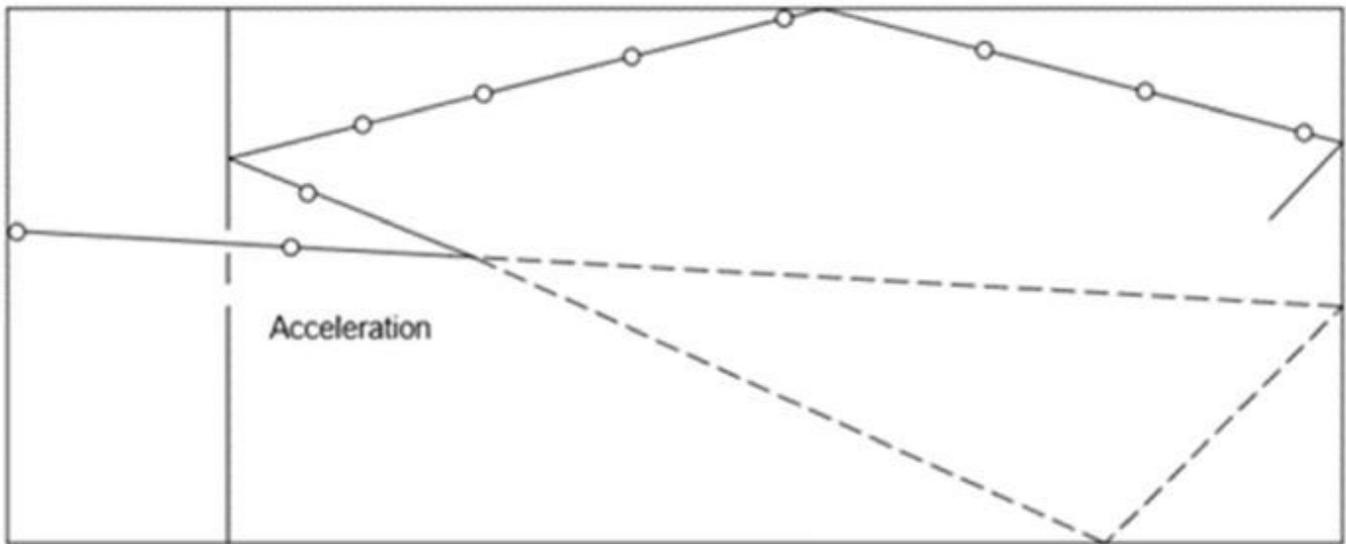
**Figure 1**

Change on the reference of the particles. (1) Two similar particles with reference: the property position is known; (2) Two similar particles without reference: the property distance is the same (by definition).



**Figure 2**

Double-slit thought experiment (view from top): the particle (an atom) gains momentum transmitted by the detector, and its velocity increases.



**Figure 3**

Double-slit thought experiment (view from top): the particle (an atom) moving slower than its informational line is pulled to the node where the line crosses – acceleration; time updated at node; the particle does not take the dashed path.

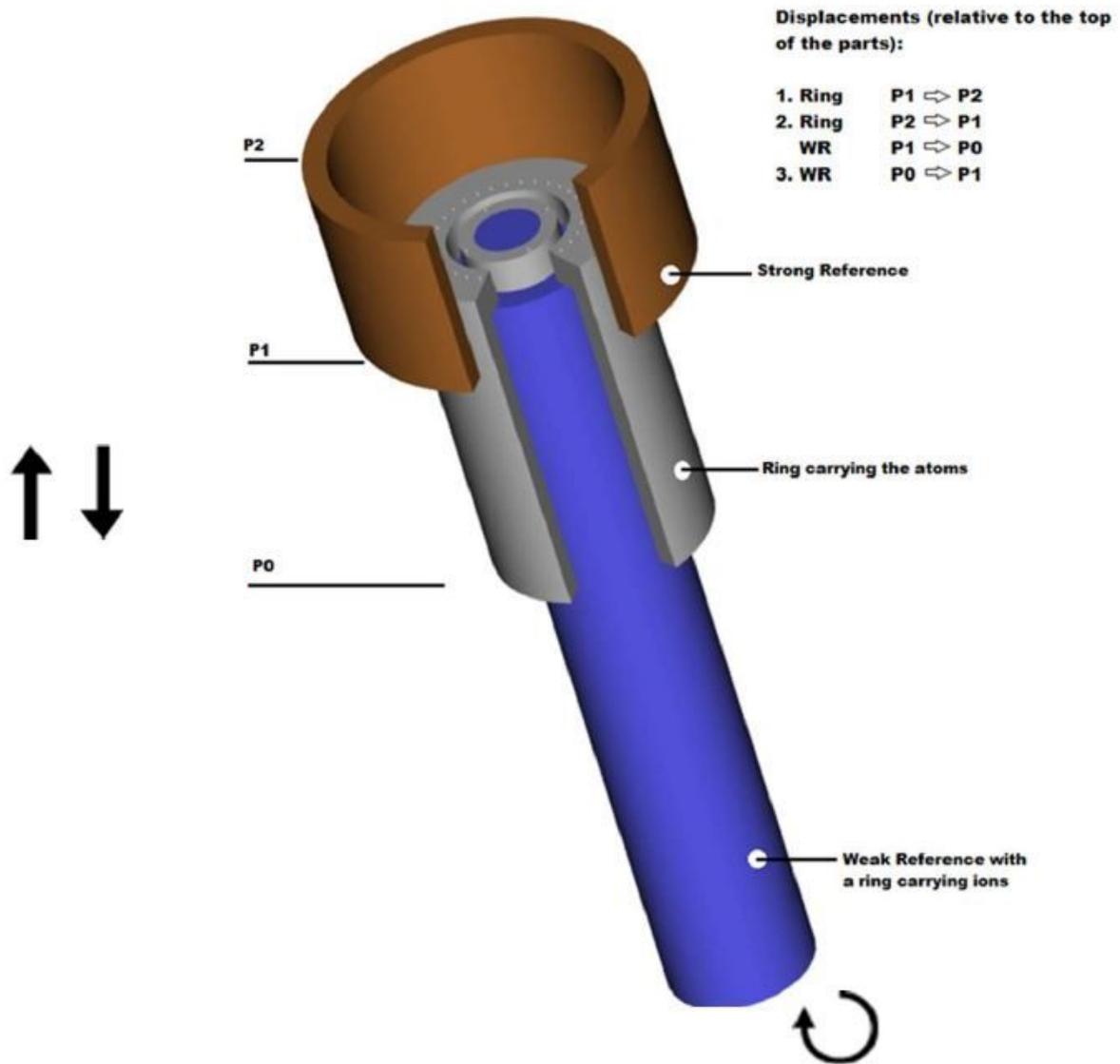


Figure 4

Draft of a nanodevice for fusion energy.