Title: **The Higgs-boson in a Physical Reality perspective.**

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Abstract*: As goes for any elementary or field particle, a Higgs boson's properties as observed by physics and the equivalent hypothetical values logically deduced within a valid Physical Reality (PhR) model must correspond.*

1. A physical reality model (PhR).

- In vixra.org/abs/1604.0230 (***About Physical Reality)***, published last year, an attempt has been made to describe the evolution of our cosmos in terms of what really exists, starting from a few straightforward assumptions, an empty initial state (cosmos(0)), a single creation event that changed cosmos(0) into a non-empty cosmos(1) state (creating a **point** object, bearer of a "**charge**" quantum : charge is the only discriminating property between something and nothing) and 6 "elementary" or "base" laws.
- The recursive application of these laws on cosmos(1) will generate, after 13 billion years, a PhR-consistent version cosmos(X) that must be reconcilable with the outcome of reliable and well designed physical experiments. The equivalent mathematical representations of behavior and properties (in line with experiments but taking into account certain constraints proper to each model) must fit PhR – compliant patterns and processes. Equivalency, however, need not imply full compliancy with PhR – indeed, the underlying physical theories of those experiments and models, although widely accepted, might be at odds with a valid physical reality model.
- Reconciliation of results from two radically different approaches – i.e., on the one hand, the inductive approach of Physics and, on the other hand, a deductive method starting from an unproven initial state (PhR) – is not straightforward. The second method, moreover, more so than its Physical counterpart, runs the risk of generating a purely fictitious or erroneous picture of the real cosmos.
- An example of such difficulties is the definition and acceptance of a common set of standard units needed to express, on the one side, measured properties (Physics), and on the other side, the characteristics of hypothetical objects proposed by a PhR model. Both approaches should ultimately use common units (e.g., to express a Coulomb-like unit charge), but PhR has to start from a hypothetical "smallest-object-ever" and a context devoid of extrinsic references or standards, while physics often respects and reuses historical standards, defined at some point to express at that time reliable results of observations.
- To circumvent this problem, this PhR model will select a reference object common to physics and to its own architecture. Once accepted, PhR will try to link this reference object and its behavior, to other PhR patterns and processes,

in a logical manner and in line with its own rules and procedures. If these indirect and PhR-consistent results can then be reconciled with the outcome of confirmed physical observations and measurements, it will increase the trustworthiness of this PhR model. Chapter 7 of the newly updated version of the viXra-article mentioned above uses the neutron as reference object and its null-mass property as a common standard to express an equivalent “property” for other PhR patterns (in casu: an **EZK** or 4-zeron pattern) as for their analogues (in this attempt: the Higgs boson) in Physics.

- The original version (chapters 1 to 6) contains the basic mechanisms and definitions needed to grasp the reasoning behind the deduction of mass in physical terms from the PhR-consistent counterparts of the Higgs and the neutron.
- In this context, it is crucial to understand that this model posits a dynamic, double, dense and layered grid, filled with oscillating points and **zerons**, as the “real” content of a still growing spacetime volume (the “vacuum” in Physics). A (field) particle is nothing but a dynamic pattern made of points and zerons with a coherent behavior and interconnected by the impact of the fastest possible exchange of **charge info** quanta – not unlike, to use an image, those old billboards with their arrays of light bulbs, flashing synchronously on and off to give an impression of pictures or messages moving back and forth. Any change in a pattern’s state is emitted as quantized charge info: another pattern, when hit in an appropriate state by a compliant charge info package, will change its subsequent layout and behavior.

2. <u>The result</u>.

- The outcome of this study is described in a new chapter 7 of the viXra document referred to. Starting from a neutron mass of 939,5 MeV/c², the calculation is straightforward and only needs an adjusted value of the dimensionless reciprocal fine structure constant (137). “Adjustment” means that the internal binding of an EZK based replicating pattern has to be taken into account (137 becomes 133). The calculated mass (133 x 939,5 MeV/c² or a value of 125 GeV/c²) is fairly well in line with recent figures published by CERN.