

# The Weak Force Mechanism and the "W" IVB (Intermediate Vector Boson): a Bridge Between Symmetric (2-D) and Asymmetric (4-D) Reality

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The weak force, the "W" particle, and the IVBs generally (Intermediate Vector Bosons), are the connecting link between the symmetric (2-D) and asymmetric (4-D) particle realms, between the "virtual" (atemporal, non-local) realm of particle-antiparticle pairs, and the "real" (temporal, local) realm of material (matter) particles. These realms were both born in the "Big Bang", originating in the primordial interaction (mediated by the weak force) between high-energy light and a very dense, compacted spacetime metric. They were separated by "symmetry-breaking", due to the asymmetric interaction of the weak force with matter vs antimatter, probably via the leptonic decays of electrically neutral "leptoquarks" (see: "[The Origin of Matter and Information](#)".)

The primordial dense metric (or "mass") of the IVBs remains as the umbilical relation, bridge, or connection between the two realms, a remnant of their original shared energy-dense environment. The IVBs are instrumental in effecting a union between these long-separated domains, during which a transformation of both realms can occur. This IVB interaction involves the crucial quantum "bit" of particulate information, the "identity" charge of the neutrinos, leptons, and weak force. The identity charge allows the creation, destruction, or transformation of elementary particles, that is, allows the passage of elementary particles or bits of "identity" information in either direction through the dimensional veil of spacetime, as 2-D symmetric vs 4-D asymmetric (or virtual vs real) expressions of electromagnetic energy. (See: "[The "W" IVB and the Weak Force Mechanism](#)".)

While it is true that "real" (temporal) particles remain in communication with the realm of "virtual" (atemporal) particles through the swarms of vacuum particle-antiparticle pairs that constantly surround all manifest particles, transforming interactions between the two realms can only take place over the IVB "bridge". The most significant feature of the massive IVBs is that they recreate the original conditions of the energy-dense primordial metric in which particles were first created and transformed during the early micro-moments of the "Big Bang". This recapitulation ensures that the original and invariant values of charge, mass, and energy are handed on to the next generation of elementary particles. The IVB mass not only provides a "conservation containment" or "safe house" where charge and energy transfers can take place, it simultaneously ensures that the appropriate alternative charge carriers are present. (See: "[Table of the 'Higgs Cascade'](#)".)

There is a crucial difference between the electromagnetic or strong force creation of particles via symmetric particle-antiparticle formation, and the weak force creation or transformation of asymmetric "singlet" particles to other elementary forms ("singlets" are matter particles without antimatter "mates"). In the case of particle-antiparticle "pair creation", there can be no question of the suitability of either partner for a subsequent annihilation reaction which will conserve their original symmetry. Both particles are referenced against each other and gauged or scaled by universal electromagnetic constants such as  $c$ ,  $e$ , and  $h$ . However, in the case of the weak force creation or transformation of a "singlet" elementary particle to another form, alternative charge carriers must be used to balance charges, since using actual antiparticles for this purpose can only produce annihilations. But how can the weak force guarantee that the alternative charge carriers - which may be a meson, a neutrino, or a massive lepton - will have the correct charge in kind and magnitude to conserve symmetry at some future date in some future reaction, or with an unknown partner which is not its antiparticle? Furthermore, quark charges are both partial and hidden (because they are "confined"), and number charges of the massive leptons and baryons are also hidden (because they are "implicit") - they have no long-range projection (such as the magnetic field of electric charge) to indicate to

a potential reaction partner their relative state of energy. Conservation of energy, charge, and symmetry require that elementary particles created today, tomorrow, or yesterday be exactly the same in all respects as those created eons ago in the "Big Bang". This is the crux of the difficulty for the latter-day creation or transformation of elementary particles by the weak force, and the reason for the unique and elaborate weak force mechanism involving the IVBs and the Higgs scalar boson.

These problems of invariance and equilibration are all solved by a return to the original conditions in which these particles and transformations were first created, much as we return and refer to the Bureau of Standards when we need to recalibrate our instruments. The necessity for charge and mass invariance in the service of symmetry and energy conservation therefore offers a plausible explanation for the otherwise enigmatic large mass of the weak force IVBs. Weak force "singlets" can only be referenced against their original creation energy, as scaled by the universal standard of the Higgs boson mass. The IVB mass (scaled by the Higgs) serves to recreate the original environmental conditions - metric and energetic - in which the reactions they now mediate took place, ensuring charge and mass invariance and hence symmetry and energy conservation regardless of the type of alternative charge carrier that may be required, or when or where the transformation takes place. The "W" IVB recreates the primordial metric of the electroweak force unification era, or electroweak symmetric energy state, in which all lepton-lepton and quark-quark transformations took place simply as the normal course of events (at a "generic" rather than "specific" level of identity). (See: [The Higgs Boson and the Weak Force IVBs](#).)

The analogy between this physical mechanism involving the birth, death, and/or transformation of elementary particles and their associated "identity" charges (carried in explicit or "bare" form by neutrinos), with our metaphysical concepts of the human soul or conserved personal identity and its transactions with a "lost" or anterior spiritual realm of light and harmony, can hardly fail to suggest itself to the intuitive mind. In this analogy, the elaborate mechanism of the weak force is played by the Church (or any institutionalization of individual human spiritual awareness), and the role of the IVBs or "W" particle is played by the shaman, spiritual medium, or priest. Combined with the "causal matrix" of historic spacetime (as seen in the "[Spacetime Map](#)"), we seem to have a nearly complete rational analog (in general terms) of the universal human concept of a spiritual realm or conservation domain, which is both anterior and posterior to the individual life experience or materialization, including a personally conserved spiritual information component, identity, or "soul". (See also: [Teilhard De Chardin: Prophet of the Information Age](#).)

The genius of the ancient intuitive mind indeed seems to have grasped many of the essential elements and underlying connections of physical reality (including the "Creation Event" or "Big Bang" of the Cosmos), and has understandably given them an anthropocentric/mythological/religious interpretation. Some of these elements are only now being rediscovered by the rational or "scientific" mind. (See: "[The Human Connection](#)".)

For a more complete discussion of the rational or "scientific" aspects of the weak force and the "W" IVBs, see the "Higgs Boson" and other weak force papers linked below.

Links:

### **Information**

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[The Information Pathway](#) (text)

[Chardin: Prophet of the Information Age](#)

[The Formation of Matter and the Origin of Information](#)

[Causality vs Information](#)

[Nature's Fractal Pathway](#)

## **Weak Force, Intermediate Vector Bosons ("IVBs")**

[Section IV: Introduction to the Weak Force](#)

[The "W" Intermediate Vector Boson and the Weak Force Mechanism](#) (pdf file)

[The "W" IVB and the Weak Force Mechanism](#) (html file)

[Global-Local Gauge Symmetries of the Weak Force](#)

[The Weak Force: Identity or Number Charge](#)

[The Weak Force "W" Particle as the Bridge Between Symmetric \(2-D\) and Asymmetric \(4-D\) Reality](#)

[The Strong and Weak Short-Range Particle Forces](#)

[Section XVI: Introduction to the Higgs Boson](#)

[The "Higgs" Boson and the Spacetime Metric](#)

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