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also means that it supports movement and changes in movement. The opposite is true for the contraction energy, i.e. its condensing characteristics inhibit movements and changes in movement. The two energies are therefore each other's opposites. They are as Yin and Yang, i.e. the primal forces of the universe according to Chinese philosophy.

1.07 Physicists Failed Attempts to join the Four Forces of Nature into a Theory of Everything

Physicists are eagerly attempting to establish a fundamental theory of everything that would explain the four basic forces of nature:

- Gravity
- Electromagnetism
- The strong nuclear force
- The weak nuclear force

There is hope that the particle accelerator at CERN will be helpful in resolving that task. What is missing above all is a 'quantum mechanical' model that can be combined with Einstein's theory of general relativity thereby explaining the phenomenon of 'gravity'. The models applied in this context are essentially derived from the so-called **standard model**. The quantum field theory describes how particles affect each other via electromagnetism and the strong and weak nuclear force. A problem with the standard model is that it does not include the gravitational force hence it is not comprehensive.

The standard model combines the weak nuclear and the electromagnetic force into a joint force called the electroweak force. At high energies these two forces act as two different aspects of the same force while at lower energies they seem to divide themselves into two different forces. This division occurs through a ‘spontaneous symmetry breaking’ (gauge symmetry)¹.

Therefore physicists are working to solve the shortcomings of the standard model and attempting to create and validate a comprehensive theory that will unify electromagnetism, the weak and strong nuclear forces and gravitational force. In order to succeed and be able to say that physics does indeed have a ‘theory of everything’, above all the following four criteria must be met:

1. Show that the four fundamental forces of nature are different aspects of the **same basic phenomenon**.
2. Show that the four fundamental forces of nature **and the particles** are different aspects of the **same basic phenomenon**.
3. Unify Einstein’s theory of general relativity (including gravity) with quantum mechanics (electromagnetism and the weak and strong nuclear force).
4. Explain what dark matter and dark energy are.

Part 2.

The Theory of Everything – a New Model called The Fundamental Energy Theory: FET

2.01 Can the Vacuum Energies that presumably possess Qualitative Characteristics constitute the Core of a Theory of Everything?

The world-famous physicist Lee Smolin states in his book *The Trouble with Physics* that a new way of thinking is necessary to guarantee the solution to the issues mentioned in paragraph 1.07. Smolin emphasizes that the complete theory of everything has to contain elements that physicists have no knowledge or experience of so far. The new model I present in this book is based on the fundamental elements of Martinus Cosmology and these may be the factors that the physics of today is lacking.

Martinus explains that everything within the physical world originates from the six basic energies, especially the expansion and contraction energies that together create 'heavy' physical matter (see paragraph 1.06). Assuming that this is true, one should be able

to create a fundamental, **qualitative** theory based on Martinus Cosmology. This would indeed be a new theory that can explain what physicists have not been able to penetrate and resolve yet.

As mentioned in paragraph 1.02, Martinus states (*The Eternal World Picture*, vol. 1, page 84) that science, i.e. the traditional science, will eventually be enlightened by and united with the cosmic science. Furthermore, he points out that these two sciences will eventually merge into one single science.

During the summer of 2008 I investigated whether natural sciences can indeed be enlightened by and united with the cosmic science as Martinus claims. The result was a fundamental and qualitative model, a ‘theory of everything’ that also resolves the four problems mentioned in paragraph 1.07. The following pages aim to provide a relatively simple presentation of the main features of this qualitative model. I would like to emphasise that Martinus himself has not written anything about the details of how his cosmology explains modern physics. Thus, the theory I present in this book is the result of my own reflection. I have chosen the name ‘Fundamental Energy Theory’ (FET) for my model and this term will be used throughout the text.

2.02 Dark Matter, Dark Energy and the Cosmic Background Radiation

Dark matter and dark energy are currently unresolved mysteries within physics. The name ‘dark’ is assigned to these energies as they are unseen, immeasurable and unobservable. However, it is necessary to solve these puzzles in order to complete the ‘theory of everything’. The physicists assume, relying on various calcula-

tes that the more mass an object has, i.e. the more it weighs, the more of both expansion and contraction energy it contains.

We can now reconnect to Figure 1 page 37 that we studied in paragraph 2.05 to try to derive an explanation for what the Higgs field and the Higgs particle may correspond to within FET. Figure 3 below shows that the Higgs field corresponds to the expansion energy of the zero-point field. It is this field that physicists liken to syrup and that exists everywhere in the universe according to FET.

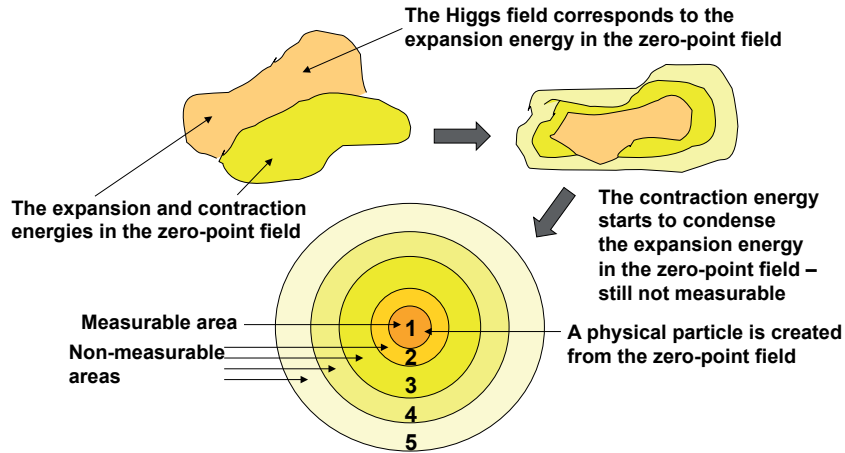


Figure 3. Areas 2-5 are undetectable since they consist of vacuum energies.

According to my model, particles are created by the contraction energy densifying the expansion energy as the particles receive a certain mass **at the same time**. The more expansion energy contained in the particle and thus the more it weighs, the more con-

traction energy is required to counteract the expanding tendency of the expansion energy.

Assuming that mass is a combination of expansion and contraction energies in particular, this mass also contains energy. It was in fact essentially the same energy content that Einstein showed with the formula $E = mc^2$. The energy that a certain mass has at rest is called **rest energy**. An iron that is hot actually weighs more than an iron that is cold. This is because the iron has increased its thermal energy and thus also its mass.

The model I submit solves three problems simultaneously, namely: **how** particles are created from the zero-point field, **how** these particles simultaneously obtain **different** masses and **why** mass contains energy, in accordance with Einstein's view on mass and energy.

Massless particles

Furthermore, how can we explain massless particles, such as photons? As we saw in paragraph 2.08 the massless particles possess a momentum, i.e. a form of kinetic energy. The higher frequency these particles hold, the greater momentum they have.

What can this momentum correspond to within Martinus Cosmology? According to *The Book of Life*, vol. 6, paragraph 2175, the reaction between the expansion and contraction energies creates a **tension** in the zero-point field that is the same as **force**. According to Martinus, *all* types of forces, including the four natural forces, are a result of this tension between the expansion and contraction energies. This force can, according to Martinus, be used to create movement in the physical world. The momentum or kinetic

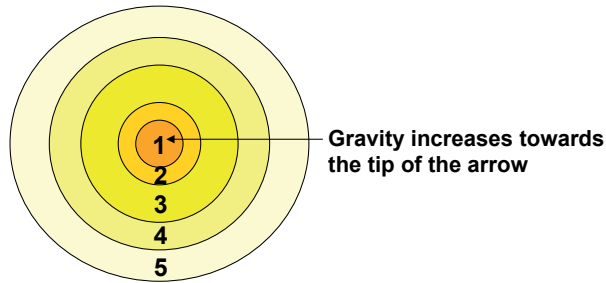


Figure 7. The contraction energy in area 3-5 densifies the expansion energy in area 2 gradually condensing this into area 1 that constitutes the physical zone.

Einstein explains gravity as a consequence of space being curved by the mass of which a planet comprises. This approach implies that gravity is a feature of space. However, in my view, the curvature of space is created by contraction energies originating from the zero-point field circling around e.g. a planet (see Figure 8 below). Nevertheless, the *effect* will be the same as in Einstein's model.

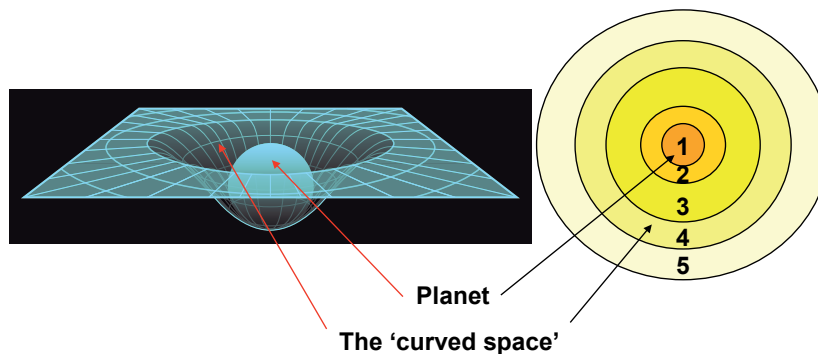


Figure 8. The curved space in FET corresponds to area 3-5. Areas 2-5 are undetectable as they are vacuum energies.

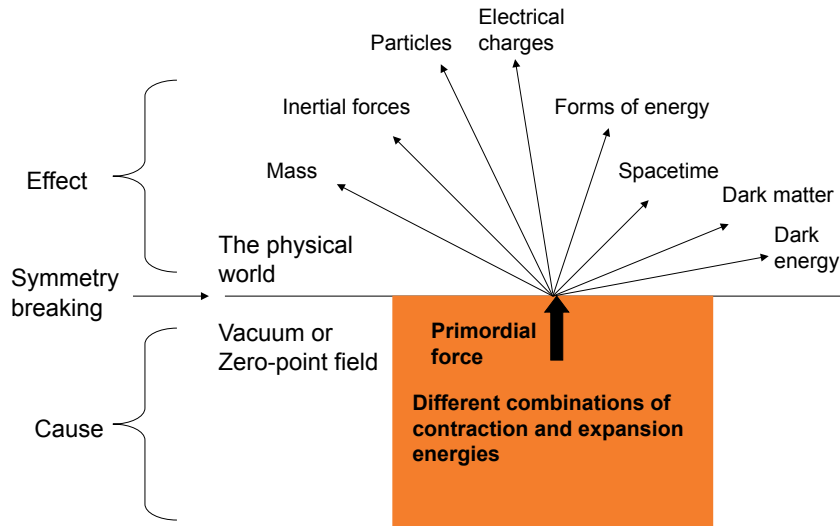


Figure 26. Showing the primordial force that gives rise to all phenomena in the physical world.

The book also explains the underlying mechanisms of Einstein's special relativity. It explains for example why the clock ('time') is slower at high speeds and in strong gravitational fields, and why the relativistic mass increases at high speeds. Furthermore, the mechanisms underlying Einstein's theory of special relativity have been explained, focusing on why space is reduced in the longitudinal direction at high speeds, and why the speed of light is the maximum speed for both items that have mass and those that do not.

Martinus implies that the entire physical world is mainly due to the interaction between the expansion and the contraction energies and provided that my model FET is correct, it con-

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A Short Introduction to Fundamental Elements in Martinus Cosmology

