

THE DISTURBING TRUTHS ABOUT LARGE HADRON COLLIDER

The 10 September was a great day. It saw the switching and inaugural injection of protons into the 26 Km ring of the Geneva based US\$4 bn Large Hadron Collider (LHC). The LHC will ultimately collide beams of protons at 14 TeV energy. Beams of lead nuclei will also be accelerated, smashing together with collision energy of 1150 TeV. The 10 September event was well publicized on TV channels and commented on in print media. Euphoric excitement was on the possibility of simulating the Big Bang, which, as the theory has it, some 15 billion years ago had instantly created the entire matter in the universe. Some feared it as a 'dooms day' and stressed on the possibility of the creation of micro black holes that would suck in the earth, moon and even the sun. But no body told or asked: Why LHC? What are its objectives? What if those objectives are not achieved? Let us recapitulate the truths and also the projected untrue truths.

The theories of Physics and Cosmology follow a Standard Model comprising the basic physical concepts, which serve as mandatory guidelines. The validity or otherwise of any theory depends on that of its Standard Model. The currently 'main stream' theories have their Modern Standard Model or MSM for short. The MSM contains or rests on some conceptual pillars, whose doubtful strength or even existence is to be tested by the LHC. To test the MSM the LHC will primarily investigate the Higgs boson, the superpartners of the elementary particles and the wrapped up extra dimensions of space.

First the God particle or Higgs boson. The currently 'main stream' gauge theories first encountered the conceptual 'problem' of massless elementary particles, then to solve it another conceptual 'problem' of mass generating Higgs boson was created. Accordingly, a bare massless elementary particle acquires mass by, so to speak eating the Higgs boson. This is anti-intuitive and against common sense. It is obviously more so since a massless electron cannot gain $0.51 \text{ MeV}/c^2$ mass or a neutrino the $0.1 \text{ eV}/c^2$ mass by eating a relatively heavy Higgs boson of mass $812\text{-}846 \text{ MeV}/c^2$ or $115 \text{ GeV}/c^2$. Here mass unit is electron-volt (eV/c^2), M stands for a million and G for 1000 million. In this author's Unified Theory, however, mass of a particle is its innate property and not acquired by eating any Higgs or other particle. Earlier, the Geneva based Large Electron Positron Collider (LEP), specifically designed for the purpose, could not find the Higgs boson and in all likelihood the present Large Hadron Collider will also not find it because the massless and mass-generating particles do not actually exist in real Nature.

The Superpartners of elementary particles. The 'main stream' quark-lepton theory was formulated to bring order in the diversity of elementary particles, but it has itself led to over hundred of them, making the term "element" meaningless. The Supersymmetry doubles this number by adding 'superpartners' to all of the over hundred elements, which LHC plans to discover. But the more than 200 number of elements in the Modern Standard Model is far too large to be realistic, reasonable and acceptable. This author's Unified Theory has only two noncomposite 'elements', the electrically positive positrino & negative negatrino.

An element has to be 'non-composite'. But the compositeness of quarks & leptons, the modern elements, was predicted in my January-1990 book '*Unified Physical Theory*'. On that basis the 1990 Nobel laureates' claim, announced in October 1990, of having revealed the quarks as non-composite basic constituents of matter was contested in the globally reported interview given by me to the Press Trust of India on 4th November 1990.

That theoretical prediction in 1990 for the compositeness of quarks got experimental support in the early 1991 via compressibility of quarks revealed in the measurements of electric and magnetic polarizabilities of proton and neutron. Obviously quarks have a composition otherwise they cannot be compressed. In fact, *none of the over 200 particles of the Modern Standard Model can be considered as an 'element' in the strict sense of the definition as "composing other particles but it itself being noncomposite"*. The LHC has no plan to elucidate the non-composite elementarity of the currently held elements.

The Energy-Mass unity: Till the beginning of the twentieth century, it was generally believed that energy and mass are two exclusively different inconvertible entities governed by separate conservation laws. In 1905 Einstein's equation $E=mc^2$ brought out the basic inter-convertibility of energy E and mass m . It supports and

is supported by experiments with LHC-like particle smashing machines in which charged particles are accelerated to very high energies and then made to collide. The kinetic energy E of the colliding particles converts into mass m of the newly created particles. Similarly the electromagnetic radiation (light) inter-transforms with matter (electron-positron pair). In both cases the energy-mass satisfies the equation $E=mc^2$. The modern Physics, with Einstein, stops here fully satisfied. But the basic question of the underlying physical mechanism for the inter-conversion of energy and mass remains unanswered, nay even unasked!

A child sees no commonality in solid ice and gaseous steam. But on growing up he finds that the same liquid water turns into solid ice cubes in a fridge and whistles out as steam from a cooker in the kitchen. Later he also learns that ice, water and steam can interconvert because all are made of the same molecule.

The above observations and the equation $E=mc^2$ inescapably force the suggestion that both energy E and mass m are composed by some more basic and subtler entity, common and continuous in both. Einstein did not and the modern Physics does not ask, leave aside answering, the question: "What is the physical nature of that subtle entity?" The LHC is not planned to investigate this '*basic substance*' which composes all forms of energy and mass.

The Wrapped up Extra Dimensions of space. A wave exists only in its propagating medium. The Relativity created the greatest confusion in science by dismissing the space medium for 'light wave' and by introducing the non-existent mathematical 4-dimensional 'spacetime' continuum in its place. This set the trend for 5, 10, 11, ... 32 dimensional wrapped up higher spacetime continua. But space & time are mere non-substantive abstract concepts arising from our life long perceptions of the successive motions and changes in the surrounding objects. These two abstracts cannot fuse into any concrete spacetime continuum to propagate light and gravitation. Therefore all higher dimensional spacetime continua are mere mathematical constructs bereft of any real physical existence. The wrapped up dimensions of space, which LHC is planned to investigate simply do not exist and will not therefore be found.

The Big Bang Theory: In a universe expanding as per the Big Bang theory the 'red shift' in the light from distant stellar objects should increase exponentially with time, which is not actually observed. This supports the theory of 'nonexpanding universe' given in my books and website. My theory explains all the cosmological observations including that on the Ia type supernovae, which had amazed and horrified astronomers due to its impliedly predicted 'empty universe'. The mass-energy content of the universe is eternally conserved without any 'creation of matter from nothing' in any explosive 'big bang'. In a press statement on 10th October 2006 I had therefore contested the basis of the 2006 Physics Nobel Prize awarded for supporting the not-provable Big Bang theory. The LHC will try but cannot prove it.

In conclusion, the LHC experiment is not very sure to achieve its objectives. The colossal amount of scarce institutional funds (US \$4 bn) and human intelligence-years (8-10 thousand global scientists' 20 years) going into its planning, assembly and execution are fraught with disappointment. The grand edifice of the currently 'main stream' theories of Physics & Cosmology developed during the past over a century might be shattered into smithereens. The Nobel Prizes awarded to a number of brilliant scientists might attract question marks. See details in my forthcoming book: *UNIFIED THEORY With Realistic Foundations of SCIENCE & PHILOSOPHY*.

Prof. Dr. Rati Ram Sharma,
DSc, PhD (London), MD (MA), MSc, MAMS, FIAMP
Retd. Professor & Head, Dept of Biophysics & Nuclear Medicine, Postgraduate Inst. of Medical Education & Research, Chandigarh, India. Present residence & mailing address: 615, Sector 10, Panchkula-134113, Haryana, India. Phone: 0091-172-2563949/ 4657615; rrjss615@gmail.com ; drratiram_sharma@yahoo.co.in; http://www.geocities.com/drratiram_sharma/ ; <http://www.sharma-upt.com>