

## GRAVITATION AND HYDROGEN BOMB

by

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### ABSTRACT

This very short essay is written exclusively for the 2013 *Gravity Research Foundation* competition of essays on gravitation to indicate very briefly the possibility how to construct a terrifying hydrogen bomb, but clean, i.e., without any very harmful radiation following the procedure outlined by this author in his other essay entitled “GRAVITATIONALLY CONTROLLED EFFICIENT HYDROGEN FUSION”, which was submitted on February 21, 2012 for the 2012 *Gravity Research Foundation* competition of essays on gravitation.

### INTRODUCTION

In November 1952 the terrifying hydrogen bomb was experimentally tried in the USA. The hydrogen fusion in that bomb was triggered by the nuclear-fission unit-bomb with the inevitable very harmful radiation.

Since that time, the laboratories throughout the world were working on the efficient hydrogen fusion into helium, which releases the enormous radiation free heat energy to be used for generating electricity presumably at very low cost. However, no progress in that direction was reported so far, with more energy consumed to obtain the hydrogen fusion than the energy obtained by that hydrogen fusion. In fact, the author of this paper heard on the BBC (*Science in Action* feature of the British Broadcasting Corporation usually transmitted on Fridays about 13:35 UTC), that the **US scientists** working on the hydrogen fusion projects notified in November 2012 the Congress of the USA, that they **are abandoning further research for the efficient hydrogen fusion.** This author wonders whether that news is correct.

### NEW APPROACH

On the basis of his unified field theory of gravitation and electromagnetism available on his Internet Site <http://jovandjuric.tripod.com>, this author concluded that what was missing in the experiments up to now to obtain the efficient hydrogen fusion is the gravitation of the order of about  $250 \text{ ms}^{-2}$ , which is approximately the gravitation strength on the surface of the Sun, with the suggestion of using the centrifuge in the experiments to substitute efficiently the gravitation of the Sun. This conclusion was expressed firstly in the essay entitled “GRAVITATIONALLY CONTROLLED HYDROGEN FUSION” submitted on February 21, 2012 for the 2012 *Gravity Research Foundation* competition of essays on gravitation, and it is exactly repeated at the end of

this paper as the REFERENCE. Almost identical paper entitled “CENTRIFUGE CONTROLLED EFFICIENT HYDROGEN FUSION” was placed at the beginning of April 2012 on this author's Internet Site <http://jovandjuric.tripod.com> There can be no doubt that if the physical conditions on the surface of the Sun are correctly replicated-duplicated in those experiments, the efficient hydrogen fusion must be obtained.

### CLEAN HYDROGEN BOMB

It is obvious that the process for obtaining the efficient hydrogen fusion can be also used for the construction of the hydrogen bomb, thus eliminating totally the nuclear-fission unit-bomb, which is used in the original hydrogen bomb to trigger the hydrogen fusion, and, consequently, eliminating the very harmful nuclear radiation. It is also clear that such clean hydrogen bombs can be made of various sizes and potencies, and that they can be also used for the excavations, the constructions of tunnels, dams, etc., since such hydrogen bombs are free of any harmful radiation, but very dangerous instruments.

### REFERENCE

GRAVITATIONALLY CONTROLLED HYDROGEN FUSION submitted on February 21, 2012 for the 2012 *Gravity Research Foundation* competition of essays on gravitation and repeated exactly here in its entirety as the REFERENCE.

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### ABSTRACT

Gravitationally controlled efficient hydrogen fusion was conceived on the basis of gravitational experiments with triangularly formed needles made of wood or any non-ferromagnetic material and pivoted to rotate freely in the horizontal plane in Earth's gravitational field. These needles assume after some oscillations N-S direction identical to N-S direction of ordinary magnetic compasses. Those experiments were suggested by the unified field theory of this author as presented on the Internet Site <http://jovandjuric.tripod.com> announced in the Fifth Award winning paper in the 1963 competition of the Gravity Research Foundation.. These experiments prove that gravitation and conventional magnetism represent a unique entity, which fact is essential for efficient control of hydrogen fusion achieved efficiently **only** by application of acceleration of about  $250 \text{ ms}^{-2}$  produced by a sophisticated centrifuge.

### INTRODUCTION

The research for the efficient fusion of hydrogen in order to obtain abundant clean and relatively cheap energy has been going on in many physical laboratories throughout the world for over 60 years, but no progress in that direction has been reported so far.

It appears that the research so far for the efficient fusion of hydrogen has reached the blind alley with more energy consumed to produce hydrogen fusion than the energy obtained by that hydrogen fusion,

### SOME FACTS OF PREVIOUS RESEARCH

This author has proposed in his very short essay [1] (v. References) entitled “Gravitation and Electromagnetism” the unified field theory of gravitation and electromagnetism based on the symmetrical Maxwell equations, thus including logically the classical Newton’s theory of gravitation with electromagnetism, which obviously completes classical physics. That essay was awarded the 5<sup>th</sup> Award in the 1963 competition of the essays on gravitation of the Gravity Research Foundation.

On the basis of that unified field theory, the gravitational experiments were conceived and performed many times with the triangularly formed needles made of various non-ferromagnetic materials such as wood, brass, etc. and pivoted on a very sharp axle to rotate freely in the horizontal plane in the Earth’s gravitational field. The details of those experiments are described and reported in [2]. It must be repeated here that those needles assume after some very slow oscillations the N-S direction identical to the N-S direction of ordinary magnetic compasses. Actually, the results of those experiments prove that the intrinsic mass moment of a mass distribution is in fact the conventional magnetic moment with a suitable constant of proportionality.

That also leads to the new theory of the origin of the Earth’s magnetic field and of the conventional magnetic fields of all other celestial bodies as the gravitational interaction between the intrinsic mass moments of the Earth (or any other celestial body) and of the pivoted needle, v. [3]. The intrinsic mass moment of a mass distribution is defined and calculated with respect to the center of self gravitation of that mass distribution, at which center the self gravitational field of that observed mass distribution is equal to zero.

Further, the results of those gravitational experiments indicate quite clearly, that all mass distributions regardless of their sizes, and including the elementary particles, must be defined by the two points, i.e., the center of self gravitation and the center of mass, which centers never coincide for any mass distribution in nature due to the inevitable presence of other masses and fields, but coincide only in the case of the strictly theoretically assumed absolute symmetry of the single (i.e., theoretically all alone in the universe) mass distribution. These experimental results suggest and prove that the strong interaction is essentially gravitational, and that the gravitational methods must be taken into account and used to control all atomic interactions, including the fusion of hydrogen among others. To repeat and emphasize once more, those experimental results do prove that the strong interaction is a gravitational effect, v. [4].

### PROBLEM OF HYDROGEN FUSION

It is quite clear that gravitation and gravitational methods and equipments were absolutely ignored in the research for the efficient hydrogen fusion so far.

This author has definite ideas, which must be tried experimentally. Namely, it is observed that the hydrogen fusion is going on spontaneously on the surface of the Sun, and it is apparently that energy that creates and sustains life on our Earth. According to the Newton's law of gravitation, the gravitation strength on the surface of the Sun is about  $250 \text{ ms}^{-2}$ . The enormous mass of our Sun as well as of any star is essential to create the very strong gravitational field, which enables and sustains the strong interaction between the mass moments of the hydrogen atoms leading to their fusion into the helium atoms with the release of the enormous heat energy. It is this acceleration, which was absent in all experiments so far in the research for the efficient hydrogen fusion, but which, to repeat once more, is essential besides the very high temperature to enable the mass moments of the hydrogen atoms to begin the strong interactions leading to fusion in helium atoms. The very high temperature is certainly the outcome of the hydrogen fusion, but it is not clear whether it is necessary for the fusion to begin, and that must be resolved experimentally. The applied magnetic fields in all those experiments so far were very much weaker than necessary to be able to produce the necessary acceleration of about  $250 \text{ ms}^{-2}$ , but consuming too much energy and producing inefficient hydrogen fusion. This obligatory acceleration may be introduced efficiently **only** by using the appropriate gravitational-mechanical equipments, namely a sophisticated centrifuge, to disclose it here for anybody who is interested to try this new idea. This author has clear ideas how to do it, and is interested to get the chance, i.e. money, to carry out his experiments.

## CONCLUSION

Gravitation is undoubtedly the most important force in nature, without which, life, as we know it, would be impossible. So, it is strange that gravitation, actually acceleration by definition, is usually ignored to be taken into account explicitly in practically most physical experiments.

The experimental results of this author form the basis of the entirely new modeling of the elementary particles and the atoms, and they suggest that acceleration by a sophisticated centrifuge could substitute necessary gravitation in the experiments for the efficient hydrogen fusion.

The scientific ideas of this author, which ideas form the logical completion of classical physics, are available on his Internet Site <http://jovandjuric.tripod.com>

## REFERENCES

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3. Djuric, J., New Theory of the Earth's Magnetic Field, available in the pdf format on the Internet Site <http://jovandjuric.tripod.com>
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