

## Explanation of *Spacetime Engineering 201*

Video demonstration, YouTube, 27 March 2022

Ernest Rutherford: "Gentlemen, we have run out of money. It is time to start thinking."

Feel free to download my contribution to *The Physics of Life* (Intro.pdf) at <http://www.god-does-not-play-dice.net/Intro.pdf>

Notice ref. [53], in the last paragraph at p. 23:

53. D. Chakalov (2022), *Spacetime Engineering 201*. Video demonstration of energy non-conservation<sup>34,35</sup> and brain-controlled quantum tunneling<sup>52</sup> (Full HD, app. 20 min). Updated version of the video lecture *The Bridge* from April 2014. Read the [explanation](#).

Let me quote from p. iv, sec. Q&A, in *The Physics of Life* (Intro.pdf) at the link above:

Q3. Why are you banging your head against a wall?

A3. Climate change – read about the Rossby Waves at [YouTube](#) (1:48/4:26). We do need unlimited clean energy, and spacetime engineering may be *the only* chance we have to reduce CO<sub>2</sub> emissions by 7.6 per cent every year from 2020 to 2030. If we fail [now](#), by 2025 (Sic!) the cut needed will steepen to 15.5 per cent each year, which is absurd, plain and simple. Read p. 28 (last) in [BCCP](#). **Time is running out!**

Now, how is A3 related to ref. [53]? With brain-controlled quantum tunneling [53], one should be able to achieve controlled nuclear fusion and use it in *brand new* fusion power plants, thereby producing electricity: read A3 above.

Why making these efforts (Q3)? Because the two projects aimed at reproducing nuclear fusion on Earth, Wendelstein 7-X ([W7-X](#)) and the so-called International Thermonuclear Experimental Reactor ([ITER](#)), are doomed to fail – miserably. I am ready to explain.



[W7-X](#) (so far app. €1.2B) is expected to achieve "up to approximately 30 minutes of continuous plasma discharge in 2021".

[ITER](#) is far more expensive gamble, with total price app. €18 to €22 billion; other estimates are \$45 billion to \$65 billion.

**NB:** You *absolutely* need quantum tunneling [53] to reproduce nuclear fusion. I **don't**.

D. Chakalov <dchakalov@gmail.com>

[chakalov.net](http://chakalov.net)

July 3, 2021, 09:00 GMT

A star is drawing on some vast reservoir of energy by means unknown to us.  
Sir Arthur Eddington, *The Internal Constitution of the Stars*, 1920, p. 298.

*Something unknown is doing we don't know what* – that is what our theory amounts to.

Sir Arthur Eddington, *The Nature of the Physical World*, 1926, p. 291.

### Excerpts from *Can We Replicate Stellar Nucleosynthesis?*

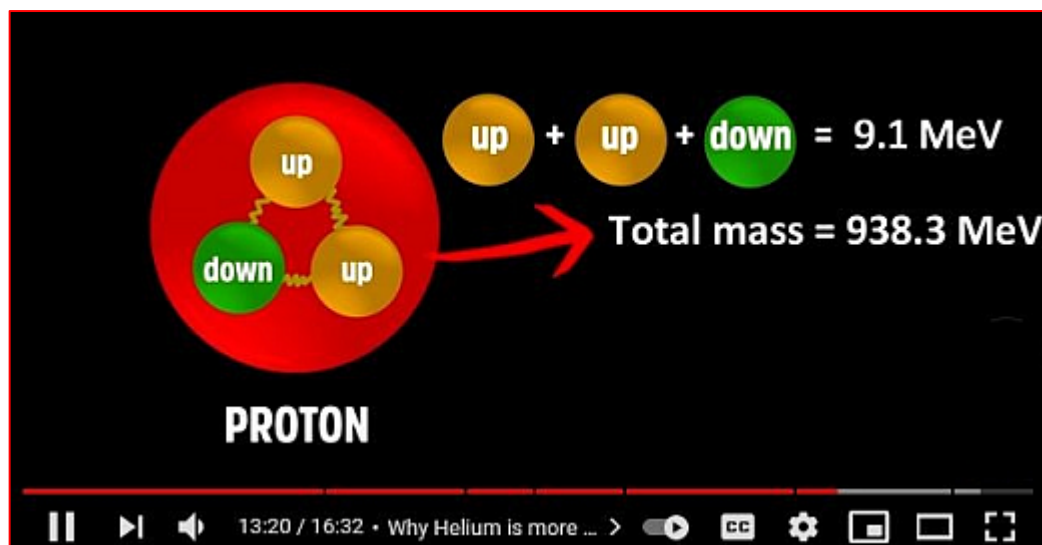
D. Chakalov  
[chakalov.net](http://chakalov.net)

People believe they know how the Sun fuses 620 million metric tons of hydrogen each second ([Wikipedia](https://en.wikipedia.org/wiki/Solar_fusion)), yet still cannot reproduce it. Can you reproduce apples with “very hot” oranges?

The first off puzzle in Sun’s engine is [quantum tunneling](#) in the [presence of gravity](#).

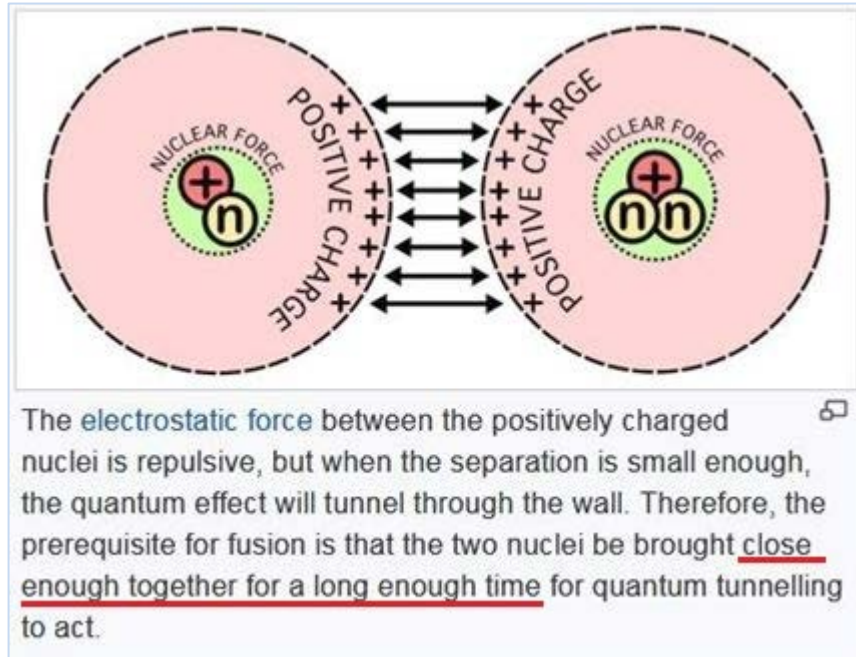


How the Sun works: Fusion and Quantum Tunneling



Why does the Sun shine? What is building up protons ([Slide 10](#))?

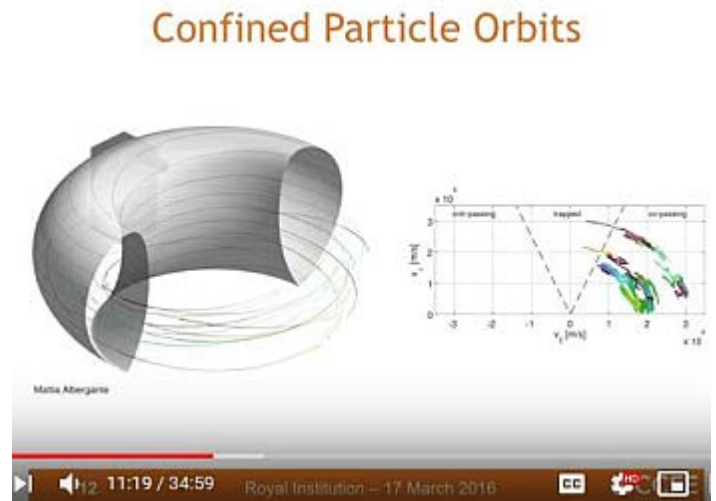
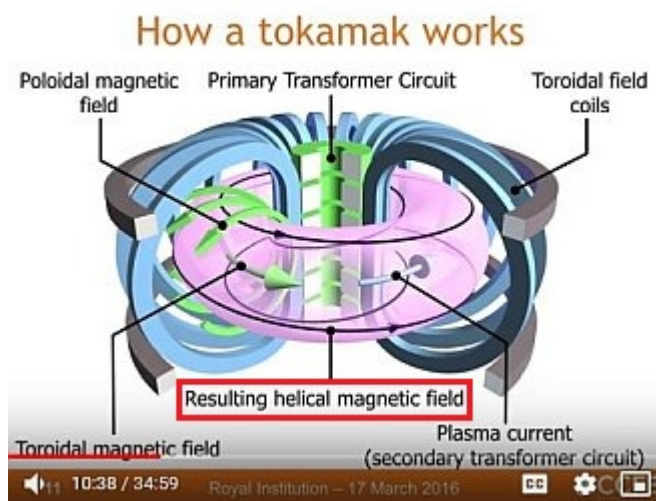
Recall that quantum tunneling ([Wikipedia](#)) is not caused by brutal force. The quantum tunneling is *absolutely* essential for Sun’s engine, and it cannot be substituted with high temperature and pressure. You can only heat up the plasma “to about 100,000,000 K” ([Encyclopedia Britannica](#)). So what? Can you reproduce apples with some “very hot” oranges? For if you do not use quantum tunneling and bet *only* on the two conditions “close enough together for a long enough time” (read [Wikipedia](#) below), you can only make **H-bombs**.



As explained in [Wikipedia](#), “temperatures needed to overcome the Coulomb barrier turn out to be smaller than expected due to quantum mechanical tunneling”; recall the [Gamow factor](#).

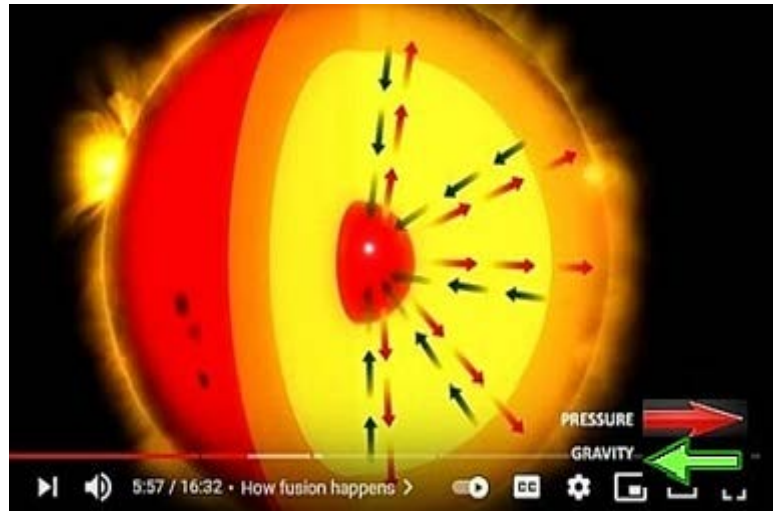
But we need [quantum gravity](#) to eventually understand how quantum tunneling works in the presence of gravity, and then model quantum tunneling in [plasma](#) under strong gravity and magnetic fields. However, we don’t know the origin of gravity and inertia in the first place.

People bluntly ignore the warning by Sir Arthur Eddington (read [above](#)) and invest billions of euros – all taxpayers’ money – for their Barbie, such as [ITER in France](#) and [Wendelstein 7-X](#). Let me be a bit more specific. Look at the “resulting helical magnetic field” yielding “confined particle orbits” below, from Ian Chapman. Where is the crucial quantum tunneling ([Wikipedia](#))?





No, you cannot put the Sun in a “magnetic bottle”, like in a pressure cooker.



Again, we [do not understand](#) quantum entanglement and tunneling under *very strong gravity*. In the first place, we believe stars are created from clumps of dust in [molecular clouds](#) by gravity, but what if gravity has two opposite, tug-of-war manifestations (physicists call them “[dark matter](#)” and “[dark energy](#)”) in dynamic equilibrium? We do not accept “[mystery mater](#)”.

Sir Arthur Eddington suggested the mechanism of nuclear fusion in stars in 1920 ([Wikipedia](#)), and Friedrich Hund discovered the [quantum tunneling](#) in 1926. Since the nucleons are quantum objects, “the inclusion of quantum mechanics is therefore necessary for proper calculations” ([Wikipedia](#)). The crux of the matter was explained by [Werner Heisenberg](#) in 1958: the so-called ‘[quantum state](#)’ is “just in the middle between possibility and reality”. Earlier, he famously stressed (*Zeitschrift für Physik* 43 (1927) 172-198, [23 March 1927](#)): “Die Bahn entsteht erst dadurch, daß wir sie beobachten.” So, if we look at the macroscopic trajectory of a particle ([Slide 7](#)), we imagine that *this wave-and-particle* can “overcome” the Coulomb barrier [above](#), which is called [quantum tunneling](#) ([Frank Trixler](#)).

Well, the *intact* ‘quantum state’ (dubbed [John](#)) can *effortlessly* show up ‘outside the barrier’. Otherwise we can’t have [stellar nucleosynthesis](#). Forget those “confined particle orbits” from [Ian Chapman](#) – the quantum tunneling cannot be substituted with temperature and pressure, like the pressure cooker above. Without quantum tunneling, you can only make [H-bombs](#).

You may not replace quantum apples with “very hot” classical oranges: read p. 12 in [facts.pdf](#).

**NB:** You need quantum tunneling for [your nuclear fusion](#). Even if you manage to “enhance” the so-called confinement time to “[around four seconds](#)”, it won’t work. You may only achieve sporadic and unsustainable bursts of nuclear fusion in ITER’s ‘pressure cooker’: the additional guiding “[vector](#)” from [quantum tunneling](#) is [missing](#). Can’t fool Nature. Details upon [request](#).

7 July 2021, 23:55 GMT

## For the record

Today is January 7, 2022. The first contribution to *The Physics of Life* was made by Erwin Schrödinger in 1944, in which he concluded that “we must be prepared to find a new type of physical law.” My [invitation for contribution](#) was sent to many physicists and mathematicians, over six months ago, and I offered them to prove my ‘new type of physical law’ false ([p. 18](#)).

As of today, (TBC).

## Questions and Answers

Q1: Can you explain the details about [ITER](#)?

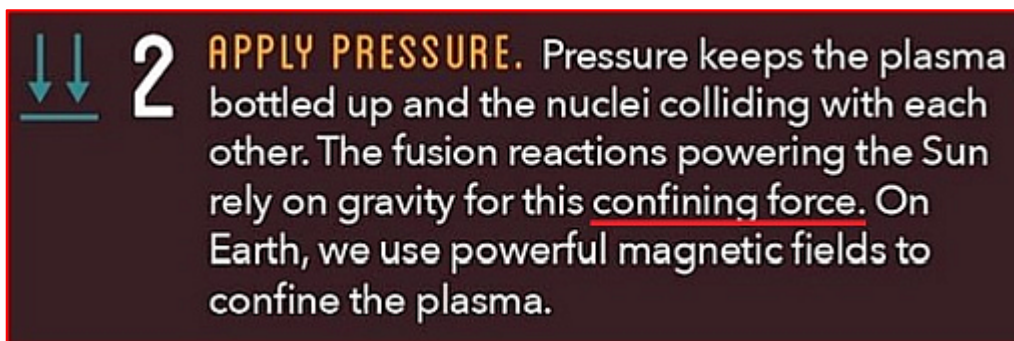
A1: ITER may only look “exciting”, like a **multi-billion-euro** Titanic. I will be glad to explain. But first, you will have to do some work to qualify: see (1)-(3) below.

1. Read carefully pp. 1-6 in  
<http://www.god-does-not-play-dice.net/facts.pdf>  
and  
[http://www.god-does-not-play-dice.net/T\\_V\\_S.jpg](http://www.god-does-not-play-dice.net/T_V_S.jpg)  
[http://www.god-does-not-play-dice.net/kip\\_slide\\_5.jpg](http://www.god-does-not-play-dice.net/kip_slide_5.jpg)

2. Write up a brief report and upload it, from your academic institution, to  
<https://arxiv.org/archive/gr-qc>  
<https://arxiv.org/help/submit>

3. Send me the link to your report in arXiv.org.

I will reply within 5 working days and will send you the requested information. It boils down to the conditions to overcome the [Coulomb barrier](#). “Maybe gravity?” ([YouTube](#), 2:12-2:18). Like the “gravity” from your [GR textbooks](#)? No, it won’t work. To quote from the [U.S. DoE](#):



How is Sun’s **gravity** (see [above](#)) producing **confining force** that is *completely* different (Sic!) from the attractive force between planets? How is this brand new **confining force** coupled to the guiding “vector” from [quantum tunneling](#)? Can we “insert” gravity in the quantum world?

Only the **self-acting** mechanism of quantum gravity. It is not like [Baron Munchausen](#). Read the last paragraph at p. 13 in [The Physics of Life](#).

Forget [GW parapsychology](#). Forget ITER’s ‘[pressure cooker](#)’ – it is a **multi-billion-euro** Titanic.

The first off challenge is to understand the *force* of gravity; for example, in [Earth tides](#). The [Christoffel symbols](#) cannot rotate the Earth and pull up [rocks](#). What is the [energy](#) from [gravity](#)? The second task is to explain ‘the only mystery in QM’: quantum tunneling in the macroscopic trajectory of a particle ([Slide 7](#)). Read the last paragraph at p. 26 in [The Physics of Life](#). This is how ‘the quantum state’ (read [above](#)) can *effortlessly* show up outside the [Coulomb barrier](#). Otherwise you cannot have sustained nuclear fusion on Earth.

However, we cannot make any progress today, because physics is vehemently contaminated with [GW parapsychology](#). Physicists are scared to even *think* about Time and gravity. Sorry.

D. Chakalov

14 July 2021, 13:10 GMT



Dimi Chakalov &lt;dchakalov@gmail.com&gt;

---

**RE: Fusion in Europe: Subscription Confirmed**

---

Dimi Chakalov &lt;dchakalov@gmail.com&gt;

Tue, Jul 13, 2021 at 12:36 PM

To: deVries Gieljan &lt;Gieljan.deVries@euro-fusion.org&gt;

Dear Mr. de Vries,

Before replying to my initial email, you should have at least glanced at <http://www.god-does-not-play-dice.net/explanation.pdf>

On Tue, Jul 13, 2021 at 10:34 AM, you wrote:

[snip]

> I'm happy to let you know that fusion researchers realise very well that  
> quantum tunneling is an essential ingredient to realising fusion.

If true, when will ITER implement quantum tunneling ?

> Stay tuned to learn more about that in Fusion in Europe!

Please get professional. The multi-billion-euro ITER is in Europe

Sincerely yours,

Dimi Chakalov  
[chakalov.net](http://chakalov.net)

-----Original Message-----

> From: Dimi Chakalov <dchakalov@gmail.com>  
> Sent: Friday, July 9, 2021 15:34  
> To: newsletter <newsletter@euro-fusion.org>  
> Subject: Re: Fusion in Europe: Subscription Confirmed  
>  
> ITER is doomed to fail -- miserably.  
> <http://www.god-does-not-play-dice.net/explanation.pdf>  
>  
> Dimi Chakalov  
> [chakalov.net](http://chakalov.net)  
>



Dimi Chakalov &lt;dchakalov@gmail.com&gt;

---

**RE: Fusion in Europe: Subscription Confirmed**

---

Dimi Chakalov &lt;dchakalov@gmail.com&gt;

Tue, Jul 13, 2021 at 3:05 PM

To: deVries Gieljan &lt;Gieljan.deVries@euro-fusion.org&gt;

Hi Gieljan:

> Where else would I have picked up that you're worried about  
> quantum tunneling? Certainly not from your initial one-sentence email.

My initial one-sentence email (printed below) had a link to  
<http://www.god-does-not-play-dice.net/explanation.pdf>  
You simply ignored it.

> There is no need to "implement quantum tunneling" in ITER or other  
> fusion devices via special devices or operations

FALSE. Do not ignore the facts. You can't fool Nature.

Please don't waste my time anymore. Just send my initial email below  
to all those "fusion scientists" at ITER or at any other institution in  
the world, your choice.

Sincerely,

D. Chakalov  
[chakalov.net](http://chakalov.net)

-----Original Message-----

> > From: Dimi Chakalov <dchakalov@gmail.com>

> > Sent: Friday, July 9, 2021 15:34

> > To: newsletter <newsletter@euro-fusion.org>

> > Subject: Re: Fusion in Europe: Subscription Confirmed

> >

> > ITER is doomed to fail -- miserably.

> > <http://www.god-does-not-play-dice.net/explanation.pdf>

> >

> > Dimi Chakalov

> > [chakalov.net](http://chakalov.net)

> >



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL FOR ENERGY

Directorate D - Nuclear energy, safety and ITER  
**D.4 - ITER**

Brussels,  
ENER/D.4/MC/or(2021)s-5000410

Dimitar G. Chakalov  
Al. Stamboljiski Blvd 28  
BG 1000 Sofia  
[dchakalov@gmail.com](mailto:dchakalov@gmail.com)

**Subject: ITER is doomed to fail, miserably**

Dear Mr. Chakalov,

Thank you for your email of 3 July 2021 addressed to Commissioner Kadri Simson. Your message was received with interest by the Commissioner's office and has been forwarded to my services for follow-up.

Compared to your first message dated 2 August 2020, I do not see any substantial new element on the web page that you refer to, at least regarding fusion and ITER.

As you may see from the ITER website, the construction of the reactor is progressing well. ITER is not a one-off project but rather the culmination of more than 60 years of research on fusion science and technology and is supported by the world's most advanced economies.

We thank you for your interest in ITER and the EU activities.

Kind regards,

*(Electronically signed)*

Renatas MAZEIKA  
Head of Unit





Dimi Chakalov &lt;dchakalov@gmail.com&gt;

---

**reply to your email dated 3 July 2021**

---

Dimi Chakalov &lt;dchakalov@gmail.com&gt;

Thu, Jul 15, 2021 at 9:26 AM

To: ROSS Olga &lt;Olga.Ross@ec.europa.eu&gt;

Cc: MAZEIKA Renatas &lt;Renatas.MAZEIKA@ec.europa.eu&gt;, CLAESSENS Michel &lt;Michel.Claessens@ec.europa.eu&gt;, "ENER-D4-SECRETARIAT@ec.europa.eu" &lt;ENER-D4-SECRETARIAT@ec.europa.eu&gt;

Dear Mrs. Ross,

Thank you for your email from Thu, Jul 15, 2021.

&gt; Please find enclosed a letter to your attention.

In this letter, your colleague wrote: "Compared to your first message dated 2 August 2020, I do not see any substantial new element on the web page that you refer to, at least regarding fusion and ITER."

I do not refer to "web page" but to p. 5 in  
<http://www.god-does-not-play-dice.net/explanation.pdf>

I hope it won't be too difficult to read p. 5 at the link above.

It is outrageously scandalous to waste 25+ BILLION Euro -- our money taken from our taxes -- for the juvenile dreams of ITER supporters. Should you or your colleagues wishes to examine the facts, please do not hesitate to write me back.

Please do not forget to keep this email in your database.

Kind regards,

Dimitar G. Chakalov  
Al. Stamboljiski Blvd 28  
BG 1000 Sofia, EU



Dimi Chakalov &lt;dchakalov@gmail.com&gt;

---

**Re: ITER is doomed to fail, miserably.**

---

Dimi Chakalov &lt;dchakalov@gmail.com&gt;

Sat, Jul 17, 2021 at 12:54 PM

To: Renatas.MAZEIKA@ec.europa.eu, Michel.Claessens@ec.europa.eu, ENER-D4-SECRETARIAT@ec.europa.eu, Gieljan.deVries@euro-fusion.org, Victor Armand Malka <victor.malka@weizmann.ac.il>, Toshiki Tajima <ttajima@uci.edu>, Sandra Chapman <s.c.chapman@warwick.ac.uk>, Pietro Barabaschi <pietro.barabaschi@jt60sa.org>, Duarte Borba <duarte.borba@euro-fusion.org>, Anne White <whitea@psfc.mit.edu>, Richard Pitts <richard.pitts@iter.org>, Robert Bingham <robert.bingham@strath.ac.uk>, Mark Koepke <mark.koepke@mail.wvu.edu>, John Palastro <jpal@l1e.rochester.edu>, Gianfranco Federici <gianfranco.federici@euro-fusion.org>, Rudolf Neu <rudolf.neu@tum.de>, Hartmut Zohm <hartmut.zohm@ipp.mpg.de>, Xiaodong Zhang <xdzhang@ipp.ac.cn>, Baonian Wan <bnwan@ipp.ac.cn>, Yuntao Song <songyt@ipp.ac.cn>, Xinchao Wu <xcwu@ipp.ac.cn>, Gunsu Yun <gunsu@postech.ac.kr>, jkl@postech.ac.kr, arakawa@ecs.shimane-u.ac.jp, cab-simson-contact@ec.europa.eu, ditte.juul-joergensen@ec.europa.eu, Klaus-Dieter.Borchardt@ec.europa.eu, Massimo.Garribba@ec.europa.eu, Brendan.Devlin@ec.europa.eu, director@acer.europa.eu, alberto.pototschnig@acer.europa.eu, caoimhin.smith@dcae.gov.ie, itercommunications@iter.org, cab-public@iter.org, iopcd@iter.org, caroline.vaxelaire@iter.org, ian.chapman@ukaea.uk, nick.holloway@ukaea.uk, d.gann@imperial.ac.uk, michael.banks@iop.org

P.S. Please see my proposal attached, from p. 9 (last) in  
<http://www.god-does-not-play-dice.net/explanation.pdf>  
D.C.

On Tue, 4 Aug 2020 18:12:53 +0100,  
Dimi Chakalov <dchakalov@gmail.com> wrote:  
[snip]

---

**ITER.jpg**

182K

Can ITER burn nuclear fuel like a candle, for at least 6 months? After “more than 60 years of research on fusion science and technology” (cf. the letter at p. 8 above), nobody managed to produce some equation involving the main factors of nuclear fusion at ITER (the triple product of density, temperature, and confinement time). All their models of “confined particle orbits” (cf. Ian Chapman at p. 3) are for the birds. ITER proponents have no idea *whatsoever* how to make ITER burn nuclear fuel like a candle. They only want to gamble our money taken from our taxes: billions, and billions, and BILLIONS of Euros.

The European Commission Directorate D - Nuclear energy, safety and ITER - should stop any financing of ITER, until they deliver their homework. Not even a cent more. Let the other signatories to the ITER Agreement – China, India, Japan, Korea, Russia and the United States – pay for the juvenile dreams of ITER supporters.

Dimitar G. Chakalov

17 July 2021, 12:12 GMT