Re: A Major Design flaw in fusion reactors is holding back progress.

Source: http://sci.tech−archive.net/Archive/sci.physics/2007−12/msg01201.html

- *From*: festusbyrne@xxxxxxxxxxxxxx
- *Date*: Sun, 23 Dec 2007 14:16:44 −0800 (PST)

On 23 Dec, 17:53, festusby...@xxxxxxxxxxxxxx wrote:

> On 23 Dec, 14:08, "Greg Neill" <gneill...@xxxxxxxxxxxxxxx> wrote:
>
> > <festusby...@xxxxxxxxxxxxxx> wrote in message
> >
> > news:f6fa817d−1d11−4271−b350−e7db8e89ce36@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
> >
> > > On 22 Dec, 19:11, "Greg Neill"
> > > <gneill...@xxxxxxxxxxxxxxx> wrote:
> > >
> > > > <festusby...@xxxxxxxxxxxxxx> wrote in
> > > > message
> > > >
> > > > news:abebc764−ea0d−422d−9294−dd139ac4a328@xxxxxxxxxxxxxxxxxxxxxxxxxxxx
> > > >
> > > > > I understand gravity is
> > > > > helping keep the sun
> > > > > together, but not only
> > > > > does it require lots of mass
> > > > > to be effective. Gravity only
> > > > > will not be
> > > > > able to stop the jets of
> > > > > ionised gas that will be able
> > > > > to escape the

> surface of the sun very
> easily.

What ionized jets are those? Fusion is taking place at
the core where the conditions are right (pressure,
temperature, density). Heat moves outwards largely
by convection and radiation. Convection cell flow
rates are less than escape velocity which is over
600 km/sec.

Particles with velocities that exceed escape velocity
will be lost, sure. We call this the solar wind.
Large coronal mass ejections are thought to be due
to magnetic field effects (reconnections of force
lines), rather than tamed by them.

> A heavy stable atom is the
> only way of generating and
> maintaining an
> effective magnetic field in
> the right place and right
> direction.

Prove it or cite references.

> The heat energy produced
> by the fusion process itself
> will also help
> in generating the protection
> field.

You've overdosed on Startrek technobabble.

> A molten iron core will not
> only generate internal
> magnetic field
> (force shield), it will also
> attract energy plasma back
> to the centre
> of the core.

Again, prove it or provide references.

> If you wish to control the
> field, then stick another
> external field on
> the outside to control the
> internal field, but it will not
> be able to
> stop internal reactions from
> escaping.

Utter codswallop.

> Please don't knock Star trek, it has been very inspiring in enabling
> us to imagine what we can achieve when we put our hearts in it. It has
> motivated a great many new developments in today's technological
> society. I am well aware of the dodgy science behind its motivation,
> so please can we do try to have an open mind.

> Lets start from basic physics. The argument is that gravity is the
> only force required produce and maintain fusion successfully, that is
> a red herring. Gravity is only effective with large masses greater

> distances not on the atomic scale. Its influence is negligible at
> microscopic scale.

Nonsense. That is certainly not "the argument". Without the nuclear forces there would be no fusion, as nucleons woould not hold together and there would be no energy available from the fusion process. You've created a straw man argument.

Gravity merely provides the environment necessary to allow fusion to take place and provides a natural regulation of the rate.

> A power station, starts by producing heat energy, converts this heat
> into mechanical energy and eventually with a lot of wastage in the
> system converts it into electricity using magnetic fields.

> The sun does exactly the same process. In the core, it generates heat
> energy by fusion.

Initial heating is provided by compression of the star. This is a result of gravity. Once pressure and temperature are high enough, fusion reactions proceed generating more heat.

> This energy is carried away from the core by convection currents (600 km/sec) translating it into mechanical
> energy.

Where did you get that 600 km/sec number for convection current speed? Please provide a reference. I suspect that you simply quoted my figure for the surface escape

velocity of the Sun.

< As convection currents always move in unison, and must

> contain plasma (super heated matter). They are electrically charged,

No. Convection currents occur in essntially isolated cells. Also, they are mostly neutral plasmas. Any large scale charge imbalance would be quickly cancelled by recombination. Apparently you don't know much about plasmas.

> and just what is needed to produce a magnetic pressure bubble on the
> surface of the sun. The pressure bubble has to encompassing the whole
> of the sun in order to generate the right conditions for fusion to
> take place in the core. It fail when sun spots caused, the magnetic
> attraction to towards to centre of the sun is reversed and so jets of
> charged plasma escapes the magnetic pressure bubble.

Oy vey. Star Trek warp bubble babble.

Apparently you don't know much about magnetism either. Magnetism, as far as science knows, is always a bipolar force. That is, magnetic charges always occur in pairs. There is no magnetic attraction towards the center of the Sun, as that would imply an accumulation of magnetic monopoles there.

Can you suggest a way to create a spherical magnet with one pole on the outside and the other at its center?

> Please goggle it or use wikipedia to find out what is magnetic
> pressure bubble, there are many references to it.

Google search results for "magnetic pressure bubble" − 0 hits.

What color is the sky in your world?

> The most important aspect of fusion processes a magnetic pressure
> bubble. It can be maintained using ordinary heat by first converting
> the heat from the core into convection currents of super heated
> plasma. Then using electrically charged plasma to generate a magnetic
> pressure bubble on the border, just by interacting with an existing
> magnetic field to strengthen it.

More Star Trek warp bubble babble. You're just pulling this stuff out of your ass, right?

> Generation of magnetic fields is generated using basic corkscrew of
> eletromagnetism method.

This gem is so fresh it still smells of shit.

> The conditions for fusion is provided by the pressure generated from
> the external magnetic bubble, which keeps everything pressurised.
> Convection currents moving to the surface translate heat energy into

> mechanical energy and are used to power the magnetic
> pressure bubble.

> If you have an actual interest in fusion mechanics, why
> don't you spend a bit of time reading about what the
> practicing experts in the field have to say rather than
> expounding your unfounded fabrications? There's plenty
> of scholarly material available on the net if you take
> the time to look.− Hide quoted text −

> − Show quoted text −

Dear Greg,

It seems to me that it is only confrontation, that you are interested in, many scientifc discovery comes from humble beginnings and learning. But it seems you have all the anawers so good luck... and please do mind your 'blood pressure'.
My friend.
Thanks for discussion.− Hide quoted text −

− Show quoted text −

http://www.image.ucar.edu/Workshops/GTP2006/abstracts/montgomery.pdf

Here are some refenrences of magnetic fields inside a sphere

Magnetic dynamo calculations inside a sphere
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Dynamo actions with and without rotation are very different. In both cases, the technique is to force a
mechanical flow pattern which may be time dependent but which has ceased to evolve systematically and
may or may not be turbulent. Then a small seed magnetic field is introduced and allowed to evolve according
to the full set of MHD equations. At the early stages, the magnetic energy is observed either to amplify or
decay, and at this stage we may be considered to be solving the kinematic dynamo problem. For the case of

amplifying magnetic fields, they may be followed on into the saturation regime, where the Lorentz force is no longer negligible in the equation of motion. Both laminar and disordered magnetic fields can be observed in different parameter regimes, and magnetic dipole moments may be computed. For the former, flips from one dipolar orientation to another are observed in some cases. For the latter, essentially stochastically varying small−scale magnetic fields are possible.
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