

Proof Hot Fusion Is A Big Scam

Clean (and cheap power?) we have been told over and over for decades. It would not be surprising to find out that a trillion dollars or more has been wasted on hot fusion technology, which is far from “clean energy.”

Our Sun is a natural hot fusion source. It works only because of its enormous size. Intense gravity keeps the Sun together as one huge mass generating continuous fusion.

How big is the Sun? According to Caltech and other sources, “Compared to Earth, the Sun is enormous! It contains 99.86% of all of the mass of the entire Solar System. The Sun is 864,400 miles (1,391,000 kilometers) across. It is 109 times the diameter of the Earth. The Sun weighs about 333,000 times as much as Earth. It is so large that about 1,300,000 planet Earths can fit inside of it.” [1]

Since the sixties we have heard and read about countless types of magnetic confinement system designs to allow hot fusion to generate electricity. In the early days, even a electromagnet shaped like the seam on a baseball was built. It was actually called the “Baseball Magnet.” It was one of many miserable hot fusion confinement failures. (Do not confuse the European CERN project with hot fusion. CERN is used for particle research only.)

We will look at hot fusion power from an angle few people have dared to. With each new design costing billions of dollars of hard-earned taxpayer money, it's past time to see this technology for what it really is.

The basic concept of hot fusion starts with a tiny fuel pellet, which is about the size of one of the date digits found on a penny. This pellet is usually made of deuterium which is found in great abundance in Earth's oceans. It is ignited in a high vacuum using multiple laser beams focused on all sides of it, or using some other kind of high temperature source.

Once ignited, the fuel pellet vaporizes into a plasma and quickly increases in temperature to upward of 100 million degrees. It will continue to become hotter and hotter if the plasma is in a vacuum and does not contact any surface. To accomplish this requires a perfect magnetic field to squeeze it together. If you ever picked up a handful of sand on the beach, squeezed it as hard as you can and see the sand leak out between your fingers, then you get the idea.

There is the patented Farnsworth Fusor which dates back to the nineteen fifties. A college student in Utah replicated it with junkpile and scrapped equipment such as a vacuum pump. The device sits on a lab bench drawing a few hundred watts of power and has been proven to generate neutrons.

Faculty that saw it work walked away shaking their heads in disbelief, when a geiger counter (modified with a stack of CD disks for it to detect neutrons) clearly showed that neutrons were being generated.

Mainstream physics still continues to ignore it – perhaps because it won't require billion dollar grants. Farnsworth proved that only a simple electrostatic field around the plasma will confine it.

After hot fusion has started in one of today's billion dollar reactors, fuel pellets must be added periodically to keep the reaction going. These pellets must enter the high vacuum and pass through the high power magnetic confinement field to reach the plasma and keep the reaction going. Magnetic confinement of hot fusion is like trying to stand on a beach ball without ever falling off.

HOT FUSION FACTS FEW PEOPLE KNOW ABOUT

What is the test to know hot fusion is taking place? Detection of high speed neutrons. Neutrons are extremely unhealthy for human beings. Remember the neutron bomb that uses neutrons to kill people? Hot fusion neutron radiation is not an insurmountable problem; reactors are shielded from harming people.

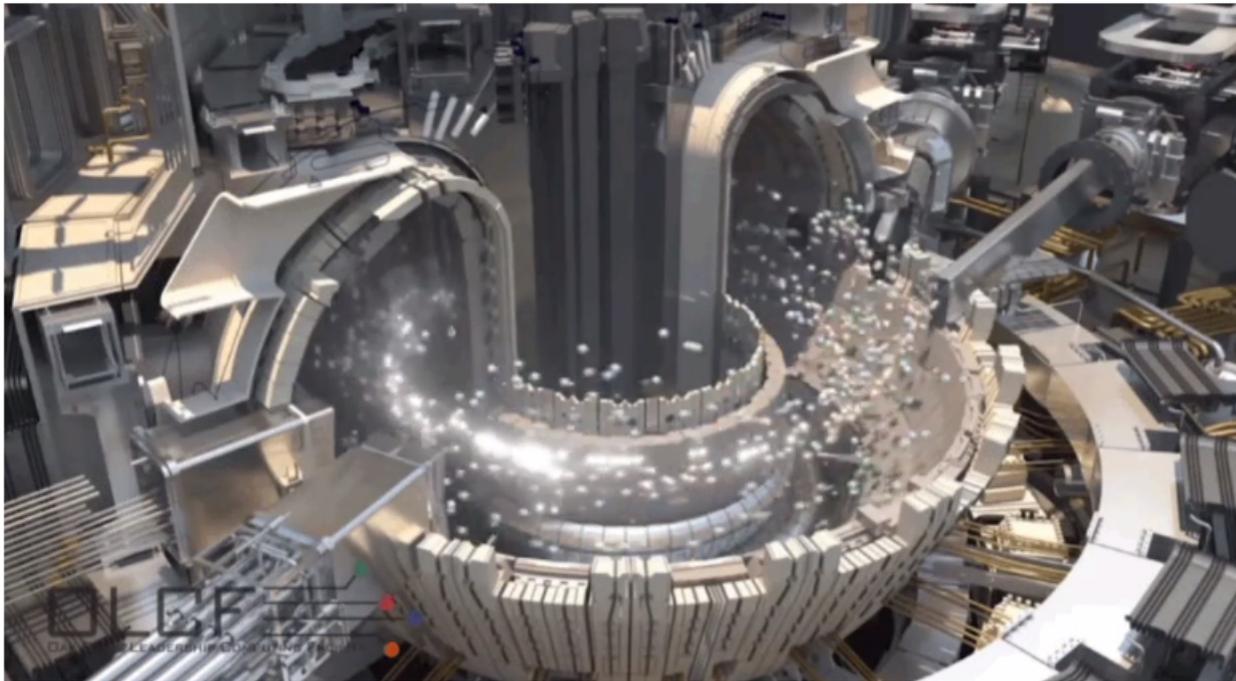
Currently there is no way to shield the hot fusion reaction from harming the reactor itself. Neutron bombardment of the containment vessel causes the materials in the reactor to weaken. The Laboratory for Laser Energetics (LLE) in Rochester, New York has a 10 ton capacity overhead crane installed while the building was constructed. It runs on parallel tracks high above the fusion chamber along two walls of the building.

What is the crane used for? According to a laser lab engineer working at LLE, "This crane will be used for periodic replacement of the fusion chamber when the reactor goes online." This was reluctantly told to me in person with a slight smirk. Clearly even the engineer didn't believe what he was supposed to say.

Replacing the chamber at the LLE facility is relatively easy. It is large sphere made of stainless steel which the crane lifts out. But thirty years later the LLE still is offline, with continuous fusion still a dream. The LLE website shows the facility is now used for basic research of targets.

Here is the real problem: Hot fusion generates high speed neutrons. Over time neutrons displace molecules in materials causing them to become brittle:

"High-energy neutrons damage and degrade materials over time; bombardment of materials with neutrons creates collision cascades that can produce point defects and dislocations in the material, the creation of which is the primary driver behind micro-structural changes occurring over time in materials exposed to radiation. At high neutron levels this can lead to embrittlement of metals and other materials, and to swelling in some of them. This poses a problem for nuclear reactor vessels and significantly limits their lifetime." [2]



[iterorganization on YouTube](#)

As of March 2016, this is the longest lasting hot fusion reactor by Iter/France

Spherical hot fusion chamber designs like that at LLE have been surpassed by a doughnut-like ring design shown above. This doughnut-like chamber holds the world record for hot fusion as of this writing, lasting several minutes before it stops and must be re-started. According to Iter, due to the high energy cost required to initiate their hot fusion process this system does not generate enough power to pay for the startup energy it consumes.

So what happens if the reactor could eventually sustain itself continuously and go on-line? During reactor operation, each neutron that rips into surrounding metals and materials displaces one or more molecules. Recall that fusion reactor chambers and materials **MUST** be periodically replaced? The newest Iter machine shown above is not exempt from neutron damage.

This destructive action invisibly tears the containment vessel apart at the molecular level, molecule by molecule like invisible machine gun bullets.

There is a huge cost of replacing all the components in the system from neutron embrittlement - millions of dollars and many months of being off-line. Not only the chamber must be replaced, but complex mechanical/electronic systems and structures surrounding the reactor will be weakened, too. It will be like building a new reactor all over again from scratch each time this must be performed.

Another problem with neutrons is that these particles cause many normally harmless materials to become **RADIOACTIVE**. Radioactive materials are transformed from the fusion reactor components. This is unlike radioactive waste conventional nuclear reactors create.

Hot fusion proponents claim this is a “clean energy source.” Clearly this is also a big lie. There will inevitably be radioactive waste materials to dispose from hot fusion reactor re-building.

It is not uncommon for scientists to ignore practical issues. When scientists are confronted with these types of problems, they escape giving a direct answer by replying, "We leave problems like that to the engineers to solve." I have heard that line more times in my life than I can count.

Physicists do basic research while endlessly reciting their mantra to the world, "No one can break the laws of physics. Period." Yet these same physicists attempt to do that very thing every day by attempting to create and confine hot fusion with brute force. Our Sun (star) does not work by external magnetic or laser confinement. It has worked for billions of years simply because of its enormous size.

Contrary to their mantra, at the end of the day physicists expect engineers to make inherent embrittlement problems with hot fusion go away. If somehow sustained hot fusion is accomplished, physicists will demand engineers quietly break other laws of physics to provide:

- a. A on-line power generating hot fusion reactor that will be highly reliable
- b. No radioactive waste or re-building material problems
- c. A miraculous hot fusion reactor with no neutron embrittlement requiring re-building

Problems inherent with hot fusion reactor technology cannot be avoided. Yet all physicists are well aware of these issues. They still claim hot fusion will be cheap and clean and have the nerve to extend a hand palm-up, asking Congressional subcommittees for funding fusion research.

If these same physicists were involved in developing the Manhattan project produce a bomb, the Soviet Union would have developed the atomic bomb first. Our world might be speaking Russian instead of English.

Over the past 50 years, history shows hot-fusion-cultists have built more than 200 fusion reactors in an attempt to create sustained fusion. We must give credit where credit is due. All of this wasted time and money has accomplished just two objectives:

1. Keep high-paid, cushy jobs with people standing around laughing and hugging coffee cups
2. Wasting billions of taxpayer dollars for each latest version of a hot fusion system.

Chalkboards and whiteboards, and screens running simulations cannot prove hot fusion will be safe, clean and economical. It is past time for physicists to swallow their pride, throw their coffee cups away and look back at what Farnsworth accomplished 60 years ago. But I strongly doubt that will ever happen. Arrogance and pride by any other name is still the same.

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[1] <http://coolcosmos.ipac.caltech.edu/ask/5-How-large-is-the-Sun-compared-to-Earth->

[2] https://en.wikipedia.org/wiki/Neutron_radiation