

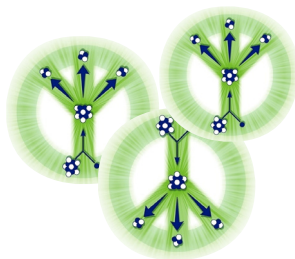
About the Society:

The Focus Fusion Society is a 501(c)(3) non-profit membership organization located in New Jersey.

We seek to turn the dream of safe, cheap, clean, unlimited energy from nuclear fusion into a practical reality, to do it as soon as possible, and to ensure that this technology is made available to all mankind.

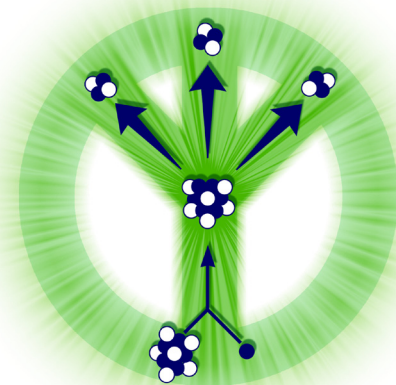
- Our favorite fusion is Aneutronic. “A new...what?” Exactly.
- Our favorite concept is “Focus Fusion.” It’s the cleanest, safest, most easily distributed, least expensive fusion concept out there. It has the shortest turnaround time for testing. And it does away with the steam engine. Electricity directly!
- LPP is testing the “Focus Fusion” concept now. Will it work? Follow the experiment!
- We promote other fusion research, too, especially ICC’s (“Innovative Confinement Concepts”).
- We advocate for better fusion policies: More funding for diverse approaches to fusion. Scientists need our support. Policy makers need to hear from all of us.
- We reframe the quest for fusion. Fusion is “oversold” but underfunded.
- We foster a pro-fusion culture.
- Join the membership!
- Get involved!

www.focusfusion.org
twitter: @focusfusion
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Fusion Time!

Clean, low cost, abundant energy
No GHG's, No radiation
Non-proliferation
Clean Water
Ionic Propulsion
(i.e., deep Space travel)



Advocating Fusion Research
and
Pro Fusion Culture

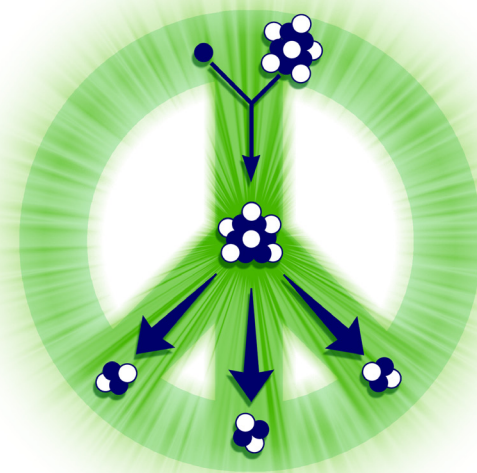
Focus Fusion Society

Break Through the Technology Barrier

Aneutronic Fusion is a technological barrier for our civilization.
A threshold. We've been aware of this threshold for decades.
But we haven't broken through yet.
How we navigate this barrier defines us as people.

Industrial age
Fission: nuclear proliferation
Fast, dirty energy
Oil spills, GHGs
Wealth for some, Poverty for the rest
Geopolitical zero sum games

Fossil Fuel Rule



The world needs fusion.
Fusion needs you!

www.focusfusion.org
@focusfusion

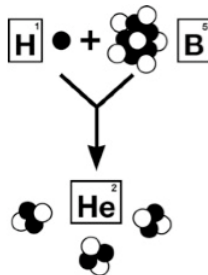
Our Favorite Fusion is "Aneutronic"

What is Aneutronic Fusion?

"Aneutronic" means "without neutrons." Unlike deuterium-tritium fusion, aneutronic fusion reactions do not generate neutrons as a byproduct.

pB¹¹ aneutronic fusion

The preferred candidate for aneutronic fusion is pB¹¹. When boron-11 ("B¹¹") fuses with a hydrogen nuclei ("H" aka "a proton" aka "p"), the result is 3 helium nuclei and no neutrons. There is no radioactive waste, because neither the fuel nor the reaction product is radioactive.

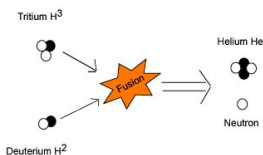


Electricity directly!

Better yet, the helium is in the form of positively charged ions (aka "alpha particles"). There's no need to heat water and produce steam and run a turbine. It's pure electricity!

What is Deuterium Tritium Fusion?

Most mainline fusion experiments work with deuterium and tritium (DT). When deuterium nuclei fuse with tritium, they form an alpha particle (helium ion) and a neutron.



The reaction generates some radioactive waste from the neutrons - not as much as fission, shorter lived, but still there. Tritium is expensive, manmade, radioactive and has weapons applications, so there are still proliferation issues.

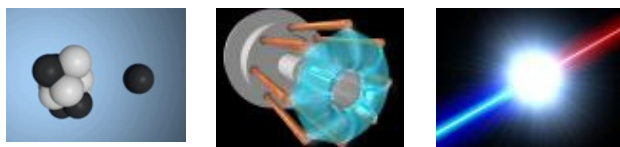
Energy output? Heat. Steam. Retro Steam Engine chic.

Fusion isn't Fission

Typically, nuclear fission involves bombarding huge uranium nuclei (235 p's & neutrons) with neutrons. This splits the uranium and generates more neutrons. Those neutrons hit more nuclei. Chain Reaction. Control rods are needed to keep it from melting down. The neutrons hit the things around them, making them radioactive. A nuclear waste problem. And then there's the breeding and proliferation. All this to generate neutrons, heat, and steam. Another glorified steam engine. How 18th Century.

Our Favorite Concept is "Focus Fusion"

What is the "Focus Fusion" Concept?



- Aneutronic fusion
- of hydrogen and boron 11 (pB¹¹)
- With the Dense Plasma Focus ("DPF")
- Generating electricity directly
- Truly green energy!

Why do we like it so much?

- It's aneutronic. No green house gases or nuclear waste.
- The DPF works with the instabilities of plasma, instead of trying to control them.
- The DPF is small. Reactors would be small scale, inexpensive, easily distributed, leading to diffusion of power.
- The outcome is electricity directly, rather than neutrons (for heat and steam generation). This is a truly new way to generate electricity, not another glorified steam engine.
- Testing it is cheap. A few million rather than the billions for other concepts.
- It has a short turnaround time. The time frame for testing Focus Fusion (and hopefully achieving net energy) is within a few years, rather than a few decades.

It's a great concept, but does it work?

Lawrenceville Plasma Physics (LPP) is testing that very question now in a lab in Middlesex, NJ.

"LPPX" stands for "LPP Experiment". You can follow the progress of the LPPX on our website, www.focusfusion.org. You can get regular updates on twitter at @LPPX and @focusfusion. Enjoy living science!

The Case for Diversifying Fusion Funding

The current national fusion policy is overly linear, pursuing a few big deuterium/tritium (DT) projects, leaving other intriguing DT projects underfunded, and leaving aneutronic fusion to the very dim future. Why? Here are a few reasons.

- Basic fusion research doesn't have a strong constituency. (It needs you! Be the pro fusion constituency).
- The energy sector ("Big Oil" et al) is not motivated to come up with new sources of energy. This affects renewables, including fusion.
- Fusion isn't defined as a renewable, and is otherwise largely ignored by the "green community."
- Fusion lobbyists face a dire funding climate. Fusion is a target for cuts. Only the two big fusion programs (Tokamaks and Lasers) are able to maintain standard funding paths.
- This means the diversity of Innovative Confinement Concepts (ICC's) and aneutronic approaches are starved for funding.
- The result is an "Eggs in two Baskets" approach to facing the fusion challenge, rather than a "multi-target" approach.
- Private financing is limited as fusion research is high risk. The classic "prisoners dilemma" applies. We wait for someone else to fund it. (Fusion free riders?)

Opportunities for Action Abound: The good news is there's a lot to do to improve the chances of fusion success. In addition to lobbying, many creative avenues to supporting fusion research haven't been fully explored. Join us in this exploration!

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