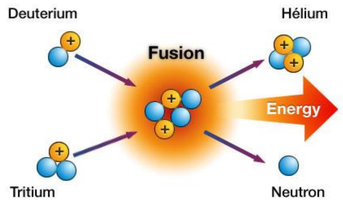
1920- FUSION RESEARCH STARTED

WHAT IS FUSION?

Fusion is the energy source of the Sun and stars. In the tremendous heat and gravity at the core of these stellar bodies, hydrogen nuclei collide, fuse into heavier helium atoms and release tremendous amounts of energy in the process.



Three conditions must be fulfilled to achieve fusion in a laboratory: very high temperature (around 150,000,000°C); sufficient plasma particle density (to increase the likelihood that collisions do occur); and sufficient confinement time to hold the plasma, which has a propensity to expand, within a defined volume.

DEVELOPMENT IN 80'S

1)In 1983-December 1984, the ten beam NOVA laser was finished. Five years later, NOVA would produce a maximum of 120 kilojoules of infrared light, during a nanosecond pulse.

2) Rochester scientists used frequency-tripling crystals to transform the infrared laser beams into ultraviolet beams.

3)Donna Strickland and Gérard Mourou invented a method to amplify lasers pulses by "chirping".

4)Chirp pulse amplification became instrumental in building the National Ignition Facility and the Omega EP system. This system used in production of weapons.

5)In 1987, Akira Hasegawa noticed that in a dipolar magnetic field, fluctuations tended to compress the plasma without energy loss. This effect was noticed in data taken by Voyager 2, when it encountered Uranus. This observation would become the basis for a fusion approach known as the Levitated dipole

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2018-YEAR OF OUTCOME FOR FUSION INVESTMENT

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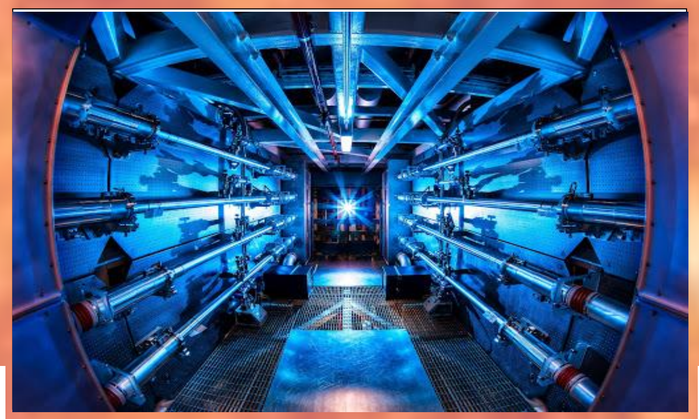
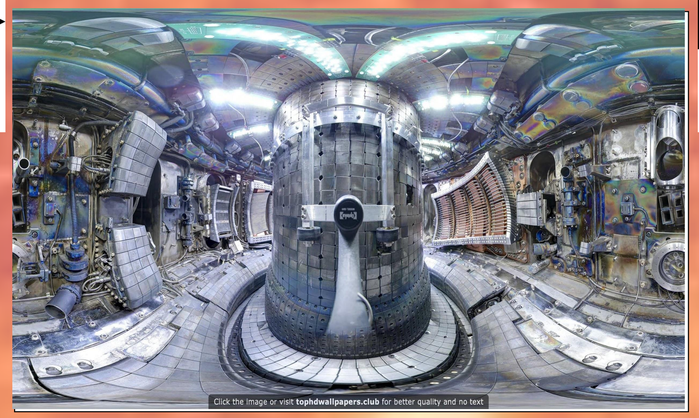
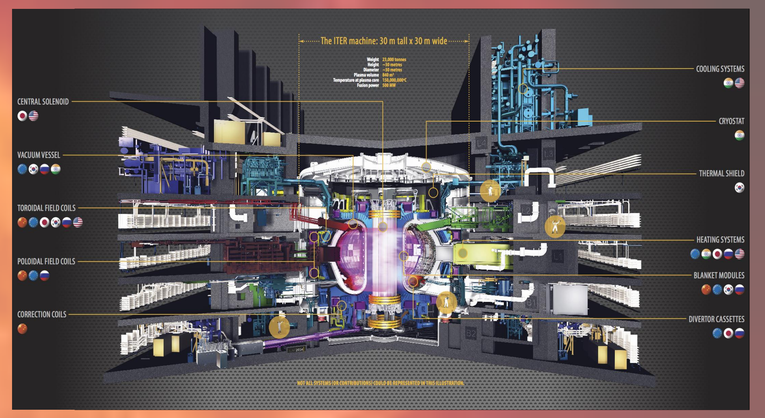




In September 2013 NIF facility announced a significant milestone from an August 2013 test that produced more energy from the fusion reaction than had been provided to the fuel pellet. This was reported as the first time this had been accomplished in fusion power research.

In October 2015, researchers at the Max Planck Institute of Plasma Physics completed building the largest stellarator to date, named Wendelstein 7-X. On December 10, they successfully produced the first helium plasma, and on February 3, 2016 produced the device's first hydrogen plasma. With plasma discharges lasting up to 30 minutes, Wendelstein 7-X will try to demonstrate the essential stellarator attribute: continuous operation of a high-temperature hydrogen plasma.



2025- ITER PROJECT

RESEARCH IMPACT

The patent for a portion of the confinement system/ embodiment, is dated Feb. 15, 2018 by Lockheed Martin. It is associated with its design for a potentially revolutionary compact fusion reactor, or CFR. Company could debut a prototype system that size of shipping container, but capable of powering a Nimitz-class aircraft carrier or 80,000 homes.

Progress in private fusion efforts continued, with General Fusion developing its plasma injector technology and Tri Alpha Energy constructing and operating the company's C-2U device. In 2018, the multinational energy corporation Eni announced a $50 million investment in the newly founded Commonwealth Fusion Systems, to attempt to commercialize the ARC technology by building a test reactor called SPARC in collaboration with MIT.

Google's machine learning algorithm (Optometrist Algorithm) has successfully achieved a 50 percent reduction in energy loss.

Power of Science.
Future Unlimited-Clean,compact Energy Source!