REALTA FUSION

INDUSTRIAL HEAT & POWER FROM FUSION

Realta Fusion is an early-stage spin-out from the University of Wisconsin-Madison developing the lowest capital and least complex path to commercially competitive fusion energy.

We are applying advances in super-conducting materials, plasma physics, and computing power to a simple linear fusion reactor configuration. These advances allow for a much lower capex power plant, utilizing abundant fuel sources to provide a new, zero-carbon source of heat and power.

The Problem: To sustain economic growth and raise standards of living around the world, humanity needs new energy sources on a massive scale. Given the challenge of climate change, such sources must be zero-carbon. While solar, wind and other renewables are growing rapidly, they will be insufficient to supply global need. These energy sources are unsuitable for industrial process heat - one of our largest uses of energy (one third of global energy consumption), and one that emits more CO_2 than the entire transportation sector. Fusion energy is the best candidate to fill this need. Yet, a major obstacle in realizing current fusion projects is their scale – they are enormous, hugely capital intensive and exceptionally complex. These projects are difficult to fund and execute which creates a risk that they will come online far too late to make an impact on climate change.

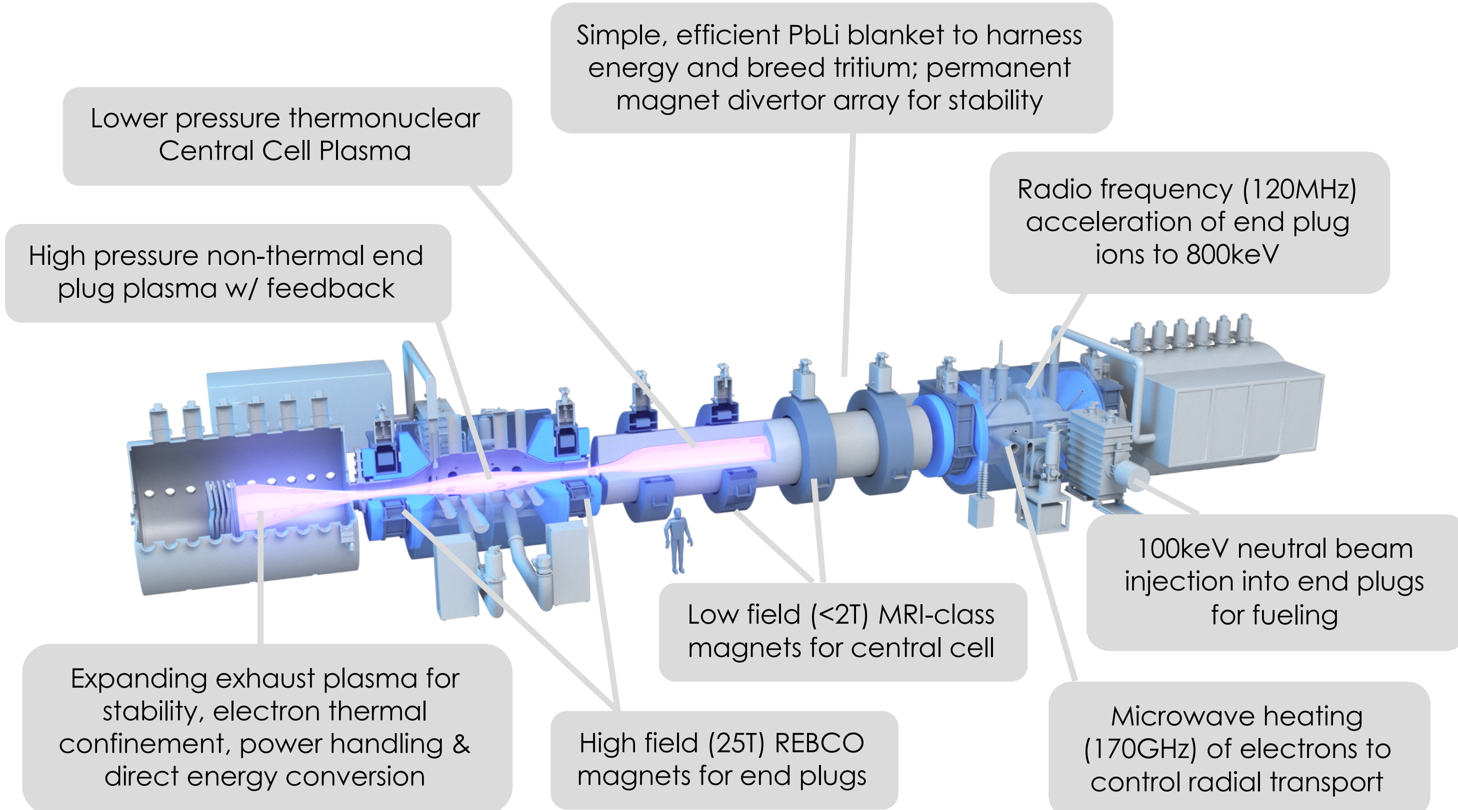
Our Solution: Realta Fusion is focused on the path to building the first commercial fusion reactor. We see opportunity in industrial heat and power with a longer-term goal to produce grid-scale electrical power. By using novel high-temperature-superconducting magnets along with advances made in international magnetic mirror experiments, we are developing a lower cost and less complex modular fusion reactor. Our compact, high magnetic field, tandem mirror reactor offers significant advantages in terms of reliability, maintenance and operability compared to complex toroidal reactors. Independent estimates indicate potential cost of thermal energy <$7/mmBTU and electricity <5¢/kWh.

Funding: Our technology has been developed under a $10M project funded by ARPA-E, with an additional $9M in funding provided by the University of Wisconsin-Madison, the Wisconsin Alumni Research Foundation (WARF) and project partners. We are raising private capital to accelerate the development of the technology and establish commercial partnerships towards the first industrial heat source from fusion.

Development Plan: The current reactor under construction (WHAM) will be used to demonstrate new, high-temperature superconducting (HTS) magnets and radio-frequency ion acceleration, as well as retire remaining plasma stability and confinement risks. A second prototype (WHAM++) will be designed to run conditions for net energy gain ($Q \geq 1$), along with commercial applications as a volumetric neutron source. Subsequently, construction will begin on a semi-commercial tandem mirror fusion reactor.

Business Plan: Realta Fusion is laser-focused on identifying the application and partners needed to build a first-of-its-kind commercial fusion plant. We see specific opportunities with large energy companies and industrial manufacturers seeking alternative, low/zero-carbon sources of process heat. We believe partners familiar with large capex, integrated process engineering projects provide the shortest path to market for fusion technology.

Realta Fusion's HAMMiR reactor



Founding Team:

Cary Forest, PhD. Leading plasma physicist and fusion innovator with private sector (General Atomics) and academic experience. Leads Wisconsin Plasma Physics Lab. Princeton PhD, Fellow of American Physical Society.

Kieran Furlong, MBA. Experienced start-up operator and venture capital investor. Chemical engineer with background in high temperature process catalysis (ICI, Johnson Matthey) and climate-tech. Stanford MBA.

Jay Anderson, PhD. World-recognized researcher in fusion plasma physics, specializing in auxiliary plasma heating and stability. Jay addresses the critical scientific issues facing the magnetic mirror fusion reactor.

Ben Lindley, PhD. Industry-experienced nuclear engineer (Jacobs) who led design and analysis of advanced fission plants, including molten salt reactors and high temperature reactors for process heat applications.

Oliver Schmitz, PhD. Expert on high temperature fusion plasma & wall material interactions. University of Wisconsin Professor & Dean of Research, ITER Science Fellow.

Future opportunities: Once "Plant No.1" is operating in an industrial environment, we see opportunities to expand in additional process heat applications (such as hydrogen) and into the electrical power generation market. Further out, fusion is the energy source required for outer solar system travel. Realta Fusion's linear reactor geometry is an obvious choice for space propulsion.

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