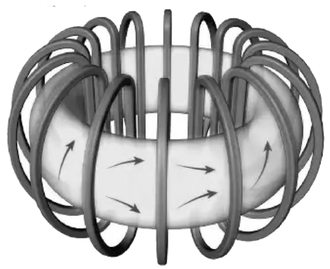
FUSION TECHNOLOGY

Stellarator technology is a modern, more advanced version of the tokamak that, today, uniquely demonstrates stable, continuous operation.

Stellarator research builds on ***50 years and $50B of Tokamak R&D***, with the vast majority being relevant for stellarators.

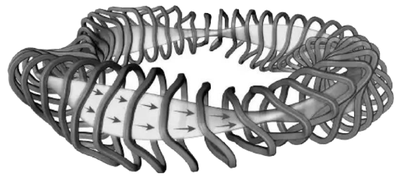
The stellarator design precisely twists the donut-shaped tokamak shape to eliminate the source of disruptive plasma instabilities, enabling steady-state machine operation, reducing first wall material degradation rates, and dramatically lowering parasitic recirculating power needs.



TOKAMAK

Symmetric magnetic confinement fusion machine

- Early adoption as a science device due to simple geometry more easily designed and manufactured in the 1970s
- Pulsed operations and high recirculating loads have made power plant development a challenge
- Rapid degradation of tokamak walls by direct heating from fusion plasma results in impractical operating periods
- No demonstrated solution to inherently unstable operation



STELLARATOR

Twisted tokamak

- Traditionally difficult to optimize, until the recent advent of exascale computing
- Non-planar stellarator magnets do not have cyclic fatigue issues facing planar tokamak magnets, but the shape requires advanced manufacturing techniques to manage costs
- Inherent stability supports continuous operations, providing the high availability required for power plant operations
- Lower neutron wall loading allows longer time between maintenance outages, further supporting a high fusion power plant Capacity Factor