

## Mission

To achieve through scientific understanding plasma conditions that would justify implementing a fully steady-state, passively stable, burning plasma stellarator.

## US ITER-era Goal

Develop and validate the understanding necessary to assess the benefits and risks of a DEMO based on the quasi-symmetric (QS) stellarator.

The US stellarator research will provide a basis for steady-state fusion without disruptions, compatible with high Q operation, using a quasi-symmetric stellarator configuration. Quasisymmetry should allow good thermal and alpha-particle confinement, and provides the potential for:

- Simultaneous optimization of confinement and stability
- Impurity control
- Lower aspect ratio

The program uses theory, modeling, experimental activities, international collaborations and engineering studies focused on resolving issues including simplified coil structures, divertor solutions, and connections to the tokamak program. The US will build on its scientific strengths to make significant and unique contributions to the international program by investigating promising stellarator configurations not being studied elsewhere.