Coupled Core-Pedestal Transport Simulations to Find Self-Consistent Solution, and Used Neural Networks to Speedup Process by Millions

Self-consistently coupled core (TGLF) and pedestal (EPED1) models

- Coupled core-pedestal transport solution is unique and insensitive to simulation initial condition
- Self-consistent optimization of ITER baseline scenario

Accelerated models with a neural-network approach

- Real-time capable: reduced computational cost by millions
- Successful validation of transport simulations with self-consistently coupled neural network models over a large database of DIII-D discharges

GENERAL ATOMICS

DIII-D
NATIONAL FUSION FACILITY