

Overview of Topical areas for Stellarator optimization

- Original topical areas identified
 - Turbulence
 - Energetic Particles
 - Divertors
 - Coils
 - Impurities (not pursued by Wistell group)
 - Optimization
- Additional areas pursued
 - Manufacturing improvements
 - Reactor scaling

Turbulence Transport Reduction

- Main participants: Chris, Paul, Ben, Ian, Joey, MJ Puschel
 - Introduce PTSM3D to ROSE (Ben, Aaron, M. Drevlak)
 - Introduce PTSM3D to mango (Ben, Aaron, M. Landreman)
 - TEM model (Chris)
 - 5 field/KBM model? (Ian, Chris, MJ Puschel)
 - Local equilibrium, NE3DLE (Joey, Ben, Chris)

Energetic Particle Loss Reduction

- Main participants: Aaron, Chris
 - Optimization with rose - paper published (Aaron, M. Drevlak)
 - Optimization including finite current (Aaron, John)
 - Introduction of Γ_c into Stellopt/Mango (Aaron, Ben)
 - Nascent collaboration with A. Cerfon at NYU (Aaron, A. Cerfon)

Improving Coil Designs

- Main Participants: Thomas, Luquant, Dave, C. Zhu
 - Optimization of multi-filaments - paper submitted (Luquant, Thomas, C. Zhu, S. Hudson, Aaron)
 - Improving focus objective functions (Thomas, C. Zhu)
 - Ferritic inserts (Thomas, Dave)
 - Building HTS coils - funded (Dave, Thomas, Chris, CFA, ORNL)

Divertor

- Main participants: Heinke, Aaron, Oliver
 - Design non-resonant divertors for midscale device (Heinke, Aaron, Oliver)

MHD stability and high beta solutions

- Main participants: John, Jack, A. Ware
 - SFINCS calculations for plasma currents (John, Jack, M. Landreman)
 - Stability with CobraVMEC (John, A. Ware)

General optimization of Stellarators

- Main Participants: (Aaron, Ben, John)
 - Wistell project - paper submitted (everyone)
 - Continuing configuration optimization (everyone)
 - Contributing to Mango (Aaron, Ben, M. Landreman)
 - Optimization using QH by construction (Jack, Aaron, M. Landreman)
 - Nascent collaboration with Cornell optimization group (Aaron, Ben, John, Jack, S. Glas)

Scaling to Reactors

- Main Participants: (Dave, Chris, Benedikt, Aaron)
 - Examining reactor scenarios (Dave, Chris, Benedikt)
 - Energetic particle losses (Aaron, Chris)
 - Path to stellarator reactor (Dave, Chris, Benedikt, Oliver, PPPL, NSCC)