Simulation Workflow for Adaptive High-Performance FR Fusion System Simulations[1] MORTEZA HAKIMI, MARK SHEPHARD, RPI, SYU-NICHI SHIRAIWA, MIT, MARK BEALL, SAURABH TENDULKAR, Simmetrix, Inc, TZANIO KOLEV, VESELIN DOBREV, JAKUB CERVENY, LLNL — Accurate RF simulations of fusion systems like ITER require the definition of high-fidelity analysis geometries that include detailed antenna, reactor wall and physics region representations. This poster will describe a workflow for the execution of adaptive high-performance FR fusion system simulations. The steps in the simulation workflow include; defeaturing of un-needed details from antenna CAD models; combining the antenna, reactor wall and physics components into a single analysis model geometry; applying physical attributes to the analysis model; automatically generating a graded mesh; and executing an adaptive finite element analysis that includes the application of a iterations of finite element solve, a posteriori error estimation, and mesh enrichment.

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