



Contribution ID: 132

Type: **Poster**

TH/P3-11: Coupled Simulations of RF Effects on Tearing Modes

Wednesday, 10 October 2012 08:30 (4 hours)

We present integrated feedback simulations of neoclassical tearing modes in tokamak plasmas. The implementation relies on the NIMROD and GENRAY codes, along with new codes for calculating a local quasilinear operator, and for performing the code coupling. The mathematical formulation relies on the formulation of a third-order electron drift-kinetic equation that captures the bootstrap current effects and is consistent with ECCD-driven kinetic distortion effects such as the Fisch-Boozer and Ohkawa current drives. Numerically solving the drift-kinetic equation relies on a new high-order continuum discretization scheme suitable for solving the equation in the presence of a macroscopic three-dimensional magnetic field. Implementing these new kinetic closures implicitly, along with the drift-kinetic terms, provides many numerical challenges and requires careful verification.

Country or International Organization of Primary Author

United States

Primary author: Mr KRUGER, Scott (USA)

Co-authors: Dr SCHNACK, Dalton (University of Wisconsin-Madison); Dr HELD, Eric (Utah State University); Dr KING, Jacob (Tech-X Corporation); Dr RAMOS, Jesus (Massachusetts Institute of Technology); Dr HARVEY, Robert (CompX Corporation); Dr JENKINS, Thomas (Tech-X Corporation)

Presenter: Mr KRUGER, Scott (USA)

Session Classification: Poster: P3

Track Classification: THS - Magnetic Confinement Theory and Modelling: Stability