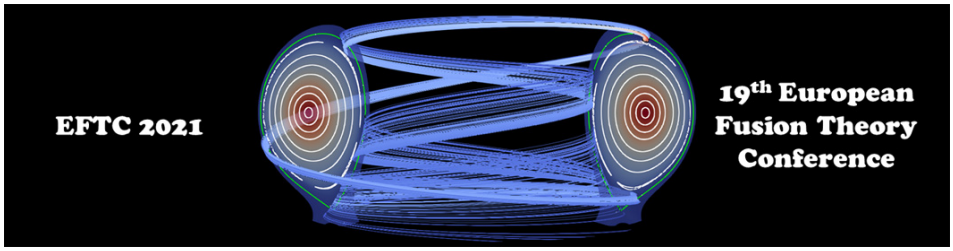


Contribution ID: **55** Type: **Poster**

# Implementation and benchmark of improved boundary conditions for 3D nonlinear MHD code SpeCyl

*Thursday 14 October 2021 14:50 (1h 50m)*

An improvement of the boundary conditions scheme of the 3D nonlinear MHD numerical code SpeCyl is presented. Boundary conditions have been shown to play a key role in the helical self-organization both in Reversed Field Pinch and tokamak plasmas. Two different sets of boundary conditions have been extensively tested against ubiquitous relaxation phenomena induced by plasma current in toroidal devices: ideal kinks and tearing modes. The role of wall position and resistivity on linear perturbations profiles and their exponential growth rates was tested, motivating the need for a reformulation of fluid boundary conditions as well. Preliminary results of such new boundary conditions are also presented, along with a summary of the relevant theoretical framework underlying linear MHD instabilities.

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**Session Classification:** POSTER SESSION

**Track Classification:** 9. Computational plasma physics