Contribution ID: **314** Type: **Poster**

TH/P3-19: Stabilization of Resistive Wall Modes by Magnetohydrodynamic Equilibrium Change Induced by Plasma Toroidal Rotation

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

It is shown for the first time that magnetohydrodynamic (MHD) equilibrium change induced by plasma toroidal rotation significantly reduces the growth rates of resistive wall modes (RWMs). Moreover, the equilibrium change can open the stable window even if there is no window under the assumption that the rotation affects only the linear dynamics, which is employed in conventional numerical studies. The rotation modifies the equilibrium pressure, current density, and mass density profiles, which results in the change of the potential energy including rotational effects. To study the effect of equilibrium change, a new code has been developed. The RWMaC modules, which solve electromagnetic dynamics in vacuum and the resistive wall, have been implemented in the MINERVA code, which solves the linearized ideal MHD equations with rotation in tokamak geometry.

Country or International Organization of Primary Author

Japan

Primary author: Mr SHIRAISHI, Junya (Japan)

Co-authors: Dr YAGI, Masatoshi (Japan Atomic Energy Agency); Dr MIYATO, Naoaki (Japan Atomic Energy Agency); Dr AIBA, Nobuyuki (Japan Atomic Energy Agency)

Presenter: Mr SHIRAISHI, Junya (Japan)

Session Classification: Poster: P3

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