Contribution ID: **439**   Type: **Poster**

Development of Predictive Simulator to Model Electromagnetic Transients for ITER Application

Wednesday, 15 October 2014 14:00 (4h 45m)

A vital part of the commissioning and testing plasma scenarios of the International Thermonuclear Experimental Reactor (ITER) is predictive simulations for the overall behaviour during operation. Due to the complexity of the facility and severe constraints related to its cost-efficiency and reliability, a particular attention should be paid to ensure required performance. The use of dynamic simulators gives an opportunity to efficiently correlate a large number of parameter on various scenarios and provide general consistency of the reactor. The paper presents an attempt to proceed to a simulator for electromagnetic transients in ITER. The basic software tool is the code TYPHOON. The algorithms and mathematical techniques are described that are targeted to achieve parallelism in computations.

Paper Number

FIP/P4-26

Country or International Organisation

Russian Federation

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Session Classification: Poster 4