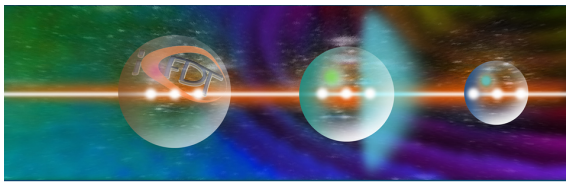

Contribution ID: **119** Type: **Short Talk**

Alternative toroidal field coils conceptual design for tokamaks in the TRUST project framework

Tuesday, 22 October 2024 11:20 (10 minutes)

An alternative design of the toroidal magnetic systems is studied and proposed for a future DEMO class reactor and applied as a conceptual scaled study for the new academic tokamak Tuscia Research University Small Tokamak (TRUST), under review at University of Tuscia (UNITUS). The alternative magnetic layout has the Central Solenoid (CS) placed around the Toroidal Field (TF) coils central column providing a relevant reduction in the reactor size maintaining the main design drivers and the reactor performance respect the EU-DEMO baseline. Otherwise, the increasing in the overall dimension for the TF coils is required to sustain the increased magnetic field and demountable magnets are mandatory for the assemble and maintenance operations. In addition, to provide the required performance High Temperature Superconductor (HTS) material is foreseen for the TF coils. A preliminary electromagnetic and structural characterization for the TF coils is performed to prove the feasibility of this solution.

Primary authors: Prof. CRISANTI, Flavio (University of Tuscia); Prof. CALABRÒ, Giuseppe (University of Tuscia); Dr NOTAZIO, Matteo (University of Tuscia); Dr SCARPARI, Mattia (University of Tuscia); Prof. FANELLI, Pierluigi (University of Tuscia); Dr LOMBRONI, Riccardo (University of Tuscia); Dr CARUSOTTI, Simone (University of Tuscia)

Presenter: Dr CARUSOTTI, Simone (University of Tuscia)

Session Classification: Diagnostic for Fusion Machines

Track Classification: Diagnostic for Fusion Machines