



Contribution ID: 53

Type: Poster

Comparison among possible design solutions for the Stray Field Shielding System of the DTT Neutral Beam Injector

Tuesday, 4 October 2022 17:40 (5 minutes)

The main purpose of the Divertor Tokamak Test facility (DTT) is to study alternative solutions to mitigate the issue of power exhaust under integrated physics and technical conditions relevant for ITER and DEMO [1]. The proposed system features a Neutral Beam Injector (NBI) heating system, providing deuterium neutrals (D^0) with an energy of 510 keV and an injected power of 10 MW to the tokamak chamber.

In this framework, the conceptual design of the Stray Field Shielding System (SFSS) for the DTT NBI is under development in order to suppress the potentially harmful effects of the stray poloidal field from the tokamak on the accelerated charged beam. Various possible design solutions to solve this problem are here presented and compared, with a particular focus on the time-dependent field minimization procedure and particle tracing simulations, used during the design validation phase with the objective of maximizing beamline performances.

[1] R. Ambrosino, DTT - Divertor Tokamak Test facility: A testbed for DEMO, Fus. Eng. Des. 167 (2021) 112330

Primary author: VERONESE, Fabio (Consorzio RFX)

Co-authors: MURARI, Andrea (Consorzio RFX); CRISANTI, Flavio (Università degli Studi della Toscana); CALABRÒ, Giuseppe (Università degli Studi della Toscana); FANELLI, Piergiorgio (Università degli Studi della Toscana); AGOSTINETTI, Piero (Consorzio RFX); LOMBRONI, Riccardo (Università degli Studi della Toscana)

Presenter: VERONESE, Fabio (Consorzio RFX)

Session Classification: Poster session 1

Track Classification: 12. Numerical simulations of sources or beams