



Contribution ID: 1205

Type: not specified

P3.158 Preliminary integration of reflectometry diagnostic inside the HCLL breeding blanket module for the EU DEMO

Wednesday, 19 September 2018 11:00 (2 hours)

An initial conceptual study of integration of reflectometry diagnostics in the European DEMO has been carried out in the previous years within the EUROfusion project. This study considered antennas and waveguides incorporated in a full poloidal section attached to the Helium-cooled Lithium Lead (HCLL) breeding blanket segments. However, this concept of a diagnostics slim cassette would reduce the volume of the breeding blanket reducing in consequence the tritium breeding ratio (TBR) and it would require active cooling system of the cassette and its first wall connected to the HCLL helium cooling. Therefore, an alternative solution based on integration of reflectometry antennas and waveguides directly in the HCLL Breeding Blanket modules was proposed.

This paper presents preliminary integration of reflectometry antennas and waveguides inside the equatorial module of the HCLL Advanced Plus concept of the EU DEMO Breeding Blanket. The main aim is to insert the antennas and waveguides in the way not to change significantly the design of the module and not to alter the performance of the HCLL module. The integration of antennas and wave guides requires local modifications of the HCLL module, in particular at the level of the first wall cooling channels, horizontal stiffening plugs, helium and lead-lithium collectors at the back of the module, and in the back supporting structure (BSS). The impact on the module performance (cooling, thermal-hydraulic, thermo-mechanic) will be also evaluated.

Presenter: Dr VALA, Ladislav (Fusion Research Centre Rez)

Session Classification: P3