Contribution ID: **158** Type: **not specified**

EHF FW panel for ITER BM with mechanical attachment of the plasma-facing components

Monday, 17 September 2018 11:00 (2 hours)

The qualification Full Scale Prototype (FSP) of the Enhanced Heat Flux (EHF) First Wall (FW) for the ITER blanket will be manufactured by JSC NIKIET and JSC NIIEFA as part of the Procurement Arrangement between the ITER Organization and the Russian Federation Domestic Agency. The FSP design is based on the FW panel #14 type A and includes: the supporting structure (FW beam), plasma facing components (FW fingers) and the central slot insert (CSI) to protect the FW beam/fingers welded joint from plasma-induced heat flux.

In 2017 the EHF FW panel design has been revised in order to improve the repairability and to provide non-destructive inspection of the FW components during the final assembly stage. The modifications include replacing the FW beam/fingers welded joint by a mechanical attachment. The mechanical attachment is located under the FW fingers and is therefore shielded from plasma-induced heat flux. This also allows the possibility of excluding the CSI from the FW panel design which would simplify the cooling channel layout; however the thermal load on the middle part of the FW beam in the absence of the CSI needs to be further assessed before a decision can be taken.

In this connection JSC NIKIET specialists have performed parametric analyses of this FW panel design, to investigate the effect of the depth of the slot in the middle of the panel.

This paper describes the revised design of the EHF FW Panel with a mechanical attachment of the plasma facing components to the FW beam, and discusses the results of the corresponding thermal and structural analyses.

Co-authors: Dr SERGEY, Tomilov (JSC NIKIET); Dr SVIRIDENKO, Maxim (JSC ”NIKIET”); Dr ANDREY, Leshukov (JSC NIKIET); Dr GERVASH, Alexander (JSC ”NIIEFA”); Dr OKUNEVA, Elena (JSC ”NIIEFA”); Dr MAZUL, Igor (JSC ”NIIEFA”); Dr SAFRONOV, Valery (Institution “Project Center ITER”); Dr CALCAGNO, Barbara (ITER Organization); Dr EATON, Russell (ITER Organization); Dr GICQUEL, Stefan (ITER Organization); Dr RAFFRAY, Rene (ITER Organization)

Presenter: Dr SERGEY, Tomilov (JSC NIKIET)

Session Classification: P1

Track Classification: Plasma Facing Components