TITLE

Overview on ITER and DEMO relevant blanket fabrication activities of the KIT INR and related frameworks

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PAPER

Fabrication experiments have been carried out in the KIT with the goal to qualify manufacturing technologies for the realization of Fusion reactor components. The main focus of the activities in the Institute of Neutron Physics and Reactor Technologies (INR) has been on the Test Blanket Module (TBM) for ITER. Sets of Fabrication and Welding Procedure Specifications have been demonstrated and qualified in relevant scale for TBM structural and functional components. The activities have been organized in two different frameworks:

i) A national program for development and qualification of industrial fabrication technologies funded by the German governmental institution BMBF (Bundesministerium für Bildung und Forschung) related to fabrication developments for all relevant sub components (First Wall, Breeder Zone Cooling Plate and Stiffening Plate) and assembly technologies (Laser, EB, Tig- welding in all TBM relevant plate thickness combinations)
ii) A procurement contract with F4E with the goal to provide a full-scale feasibility mock up for a HCPB TBM Breeder Zone cooling plate incl. the related fabrication specification.

Both projects are scheduled to be concluded in 2015 where the fabrication related activities will be continued with focus on DEMO relevant manufacturing studies and feasibility experiments in the framework of the Breeder Blanket Project in Eurofusion Consortium. This paper summarizes achievements in fabrication of ITER and DEMO relevant blanket sub components and assembly technologies of the running out projects. Blanket related technologies in relevant scale which have been developed in the present frameworks are referenced. Also the contribution identifies interfaces and interactions in between the different development approaches of the past, present and future.