

EU and JA Collaboration Activities in DEMO R&D of the BA-IFERC Project

BA-IFERCプロジェクト原型炉R&Dにおける日欧共同活動

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The Broader Approach (BA) activities have started in mid 2007. The DEMO R&D activities are intended to support the BA activities for design of fusion demonstration reactor (DEMO) [1]. Recent progress in the DEMO R&D activities [2], particularly the status and plan for EU/JA collaboration activities, is presented in this conference.

Based on the common interest of the EU and Japan towards DEMO, current activities are successfully proceeding in the following five areas: 1) SiC/SiC composites, 2) Tritium technology, 3) Materials engineering for DEMO blanket, 4) Advanced neutron multiplier, and 5) Advanced tritium breeders. So far, R&D results of EU and JA have been discussed in a series of workshops up to the 10th, which was held on February 1-3, 2012 in Kashiwa, Japan. Procurement and installation of key equipment for upgraded DEMO R&D activities has been completed at the Rokkasho site.

As for EU and JA collaboration activities, equipment for investigation of the erosion/corrosion behavior of SiC/SiC composites in Pb-17Li is under fabrication for installation and experiments at the Rokkasho site (see Fig.1). Irradiation of reduced activation ferritic/martensitic steels (RAFM; EUROFER and F82H) in a Belgian reactor, BR2, is being prepared. Exchange of RAFM, neutron multiplier and tritium breeder samples between EU and JA is planned for collaborative characterization. Thus, the R&D activities are being upgraded.

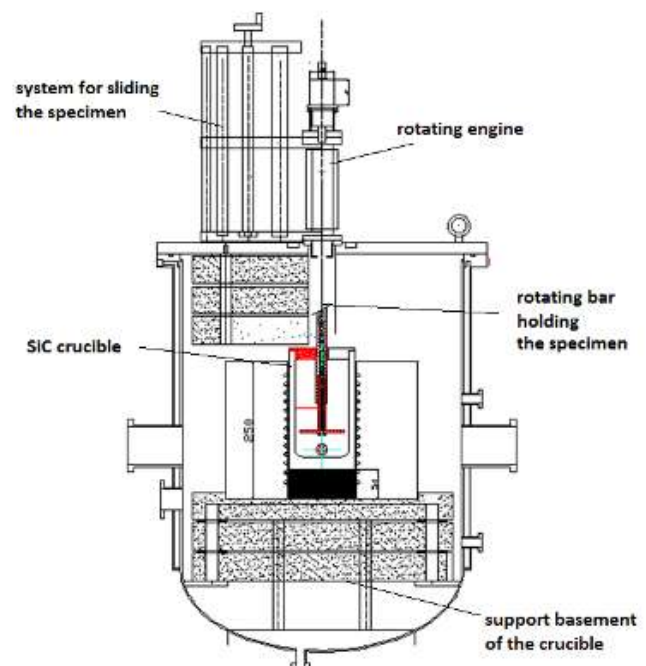


Fig.1 Oven chamber (draft) of the equipment for erosion/corrosion study of SiC/SiC composites in Pb-17Li (under fabrication at ENEA Frascati, Italy).

[1] M. Araki, K. Hayashi et al., J. Plasma Fusion Res. vol. 86, No.4 (2010) pp.231-239 (in Japanese).

[2] T. Nishitani et al., "Recent progress in blanket materials development in the Broader Approach activities", Journal of Nuclear Materials, 417 (2011) pp.1331-1335.