



Contribution ID: 225

Type: **Poster**

Investigation on the Effect of Tritium Production using Temperature Control for DEMO Blanket

Tuesday 6 June 2017 13:40 (2 hours)

The tritium production is a key issue in the fuel recycle for DEMO blanket. It is affected by the temperature field inside the blanket interior due to the temperature requirement of the tritium release and the recovery. This paper discusses the tritium breeding ratio issues based on a PWR water-cooled blanket module. In particular, the variation trend of TBR is explored with the change of blanket interior. The tritium distribution is studied with the blanket temperature field. It is found that the pipe bore affects the local TBR sensitively, and the pipe bore with 9mm reaching the maximum local TBR for a blanket module. Tritium distribution calculations indicates there will be a large quantity of tritium generated in the area near the cooling pipes if the pipe bore is designed larger than 9mm. This will lead to the low tritium release efficiency for the blanket module due to the cooling effect of the pipes. Finally, the optimal range of the design parameters is obtained in view of TBR and tritium release performance.

Eligible for student paper award?

Yes

Authors: Mr QIU, Yang (Institute of Plasma Physics Chinese Academy of Sciences); ZHANG, Jie (Institute of Plasma Physics Chinese Academy of Sciences)

Co-authors: Prof. YAO, Damao (Institute of Plasma Physics, Chinese Academy of Sciences); GAO, Xiang (Institute of Plasma Physics, Chinese Academy of Sciences); LIU, Chang (Institute of Plasma Physics, CAS)

Presenter: Mr QIU, Yang (Institute of Plasma Physics Chinese Academy of Sciences)

Session Classification: T.POS: Poster Session T

Track Classification: Blankets and tritium breeding