Overview of the US ITER Dual Coolant Liquid Breeder (DCLL) Test Blanket Module Program

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With the US rejoining ITER, the US chamber technology community has participated in discussion in the ITER Test Blanket Working Group (TBWG) and has proposed to develop, in collaboration with other parties, solid and liquid breeder blanket concepts to be tested in ITER. Presently, the focus on the liquid breeder option is the dual coolant helium-cooled reduced activation ferritic steel structure with self-cooled Pb-17Li breeder (DCLL) that uses flow coolant insert (FCI) as the MHD and thermal insulator. When projected for a reference tokamak power reactor design, it has the potential for a gross thermal efficiency of > 40%. The US is planning for an independent test blanket module (TBM) that will occupy half an ITER test port with corresponding supporting ancillary equipment. An initial design, testing strategy and corresponding test plan have been completed for the DCLL concept. The DCLL TBM design for the integrated testing phase, including the choice of configuration, relevant design analyses, ancillary equipment, testing strategy and corresponding test plan will be presented in this paper.

"Topical Category": 7) Blankets, and shields for IFE, MFE and alternates

Preference: Oral Preference

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