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## **Current Status of Chinese Solid Tritium Breeder TBM**

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China had promised to test its TBM modules during different ITER operation phase and have signed the CN HCCB TBMA with ITER IO recently. Related design and R&D activities for each TBM modules with auxiliary systems and interface with ITER facility were introduced. The preliminary conceptual design of CN HCCB TBM has been completed while the design optimization is in progress. Basic characteristics and main design parameters and technical characteristics of CN HCCB TBM are introduced briefly.

The neutron multiplier Be pebbles of kg-scale are fabricated by the Rotating Electrode Processing (REP). Be alloy are prepared by powder metallurgical (PM) methods. Be pebbles of diameters 0.5 mm and 1.0 mm as the neutron multiplier are fabricated. Related performance test is ongoing. The fabrication of pebble bed container and performance experiment of breeder pebble bed has being started. The lithium orthosilicate,  $\text{Li}_4\text{SiO}_4$  pebbles with lithium 80% enriched in 6Li as tritium breeding materials of HCCB TBM have been fabricated at laboratory level by melt-spraying method. Chinese Low-activated Ferritic/martensitic steel, CLF-1, as TBM structural materials is developing from laboratory scale towards industrially level. The structure material CLF-1 of ton-scale was recently produced by vacuum induction melting and electro-slag re-melting method. The mock-up fabrication and component tests by using the CLF-1 steel for Chinese test blanket module have being developed. Recent status on the fabrication technology development of CN HCCB TBM module was also reported.

Chinese HCCB TBM will be tested in Port #2 of ITER test ports with the India LLCB TBM simultaneously. Two TBMs and its associated ancillary systems will be integrated on same Port as well as interfaced with ITER buildings and sub-systems. The design and fabrication of related ancillary system with ITER facility are being performed.

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China

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