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0-D Physical Design for the Heating and Current Drive System of CFETR

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As the next step for the fusion energy in China beyond ITER, the China Fusion Engineering Text Reactor (CFETR) aims to operate with duty time as 0.3~0.5, means that CFETR should operate at steady-state scenario. This provides a great challenge for the physical design of the heating the current driving system. In general, four different kinds of method as NBI, ECH, LHW and ICRH have been developed in worldwide for heating plasma and driving current. Considering the characteristics of each H&CD system, we provide two design solutions as the one with NBI and all-wave solution. For the solution with NBI, the total design power is 73MW with 33MW NBI, 20MW LHW and 20MW ECRH; For all-wave solution, the total design power is 80MW with 20MW LHW, 40MW ECRH and 20MW ICRH. Those two solutions can satisfy the heating and steady-state operating aims of the CFETR through the 0-D physical design.

Eligible for student paper award?

No

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