Abstract Submitted
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The physical design of the advanced divertor for EAST and CFETR.[1] CHAOFENG SANG, Dalian University of Technology, GUOSHENG XU, LIANG WANG, RUI DING, XIAOJU LIU, Institute of Plasma Physics, Chinese Academy of Sciences, DUT COLLABORATION, EAST TEAM — The steady-state operation of next-step fusion devices requires both the deposited heat flux density on the divertor target below 10 MW/m^2 and plasma temperature at the target below 5 eV to ensure adequate lifetime. Therefore, it will be essential to achieve highly dissipative or detached divertor conditions for the control of heat flux and erosion in a fusion reactor. One of the most effective methods to promote the achievement of detachment is to improve neutral trapping and impurity screening in the divertor by changing the divertor structure. In this work, the physical design of the lower tungsten divertor of EAST has been performed by using SOLPS simulation. A systematic analysis of the target shape and closure effects on the plasma detachment will be presented. Moreover, the application of the QSF equilibrium on the designed divertor shape is evaluated. Finally, preliminary CFETR divertor design is illustrated. *Supported by National Key R&D Program of China 2017YFA0402500.

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