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Numerical Simulation Research on the New Design Scheme of the EAST Divertor using Multi-physics Coupling Method

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The surface thermal flux density on the EAST divertor would reach 10MW/m2 due to improvement of heating capacity. The lower divertor as one of the main in-vessel components in EAST must be updated to fit the future experiments for achieving high performance and long pulse plasma, which aims to bridge the gaps between the high performance experimental device EAST and the Chinese Fusion Engineering Test Reactor (CFETR).
Now, some new design schemes of the lower divertors have been proposed and studied. All the possible loads including thermal flux, electromagnetic force, eddy electromagnetic moment and so on will be considered by applying the multi-physics coupling simulation method, so the simulation results would be closer to actual condition. The design schemes which couldn't satisfy the requirements will be optimized until success.
The research efficiency could be improved and the research costs could be decreased greatly by the multi-physics coupling simulation method. All the research results will be provide valuable references to the design of the divertor or other in-vessel components on EAST and CFETR.

Eligible for student paper award?

No

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