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## Pumping Performance Calculation of HL-2M in-vessel Cryopump based on Monte Carlo method

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Sufficient pumping speed and good pumping performance should be guaranteed for the HL-2M Tokamak.Technical parameters were obtained by directly simulating with the Monte Carlo method for HL-2M in-vessel cryopump under molecular flow conditions. The predicted pumping speed of bare pump is 51.29 m3/s for H2, 38.04 m3/s for D2 and 24.94 m3/s for He. An advanced divertor system will be installed, located on the floor of the HL-2M vessel. Its pumping speed contained conductance of divertor is 20.11 m3/s for H2, 15.14 m3/s for D2 and 12.50 m3/s for He. It shows that the pumping effectiveness of the cryopump be affected by the structure of divertor greatly. The pumping speed of the cryopump can be influenced by the sticking coefficient, results be obtained by analyzing different sticking coefficient (vary  $\pm 0.05$ ). The numerical and deduction results show that the sticking coefficient has small effect on pumping speed for H2 and D2, but obviously affects the pumping speed for He. The pumping process dynamic evaluation results show that the cryopump has a quick time response.

## Eligible for student paper award?

No

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