



Contribution ID: 339

Type: **not specified**

P4.003 The study on blowout system of EAST upper divertor

Thursday, 20 September 2018 11:00 (2 hours)

The divertor which is used to discharge reaction energy is the core component of the EAST Tokamak. The divertor is cooled by cooling water when the EAST machine is in operation. In order to prevent the cooling water from corroding the components, and to avoid the uneven baking temperature caused by the cooling water residue during the next baking, the cooling water inside the divertor pipe needs to be drained after operation. Due to the special installation and structural features of the upper divertor, cooling water is gravity drained with residual water still trapped in the system, the effective method is that the upper divertor should be blown out by pressurised nitrogen gas. The performance of blowout system is determined by the pressure difference between the inlet and outlet of pipeline. The operating dates show that under the current operating pressure of the system, there is still too much cooling water in the cooling pipe, which needs to be further studied.

In this paper, the FLUENT fluid simulation calculation method is used to analyze the influence of the differential pressure at the inlet and outlet of two in series divertor modules. To study the relationship between the amount of water in the pipeline and the pressure difference, the pressure difference at the inlet and outlet is fixed, and blowout system is performed through multiple sets of pressure differences. The simulation and experiment results prove that the cooling water in the upper divertor is less retained in the cooling pipe when the pressure difference at the inlet and outlet is 0.8 MPa, which meet requirements of the EAST completely.

Presenter: LI, Weibao (Institute of Plasma Physics Chinese Academy of Sciences)

Session Classification: P4