Influence of helium puff on divertor asymmetry in experimental advanced superconducting tokamak - DTU Orbit (18/12/2018)

**Influence of helium puff on divertor asymmetry in experimental advanced superconducting tokamak**

Divertor asymmetries with helium puffing are investigated in various divertor configurations on Experimental Advanced Superconducting Tokamak (EAST). The outer divertor electron temperature decreases significantly during the gas injection at the outer midplane. As soon as the gas is injected into the edge plasma, the power deposition drops sharply at the lower outer target while increases gradually at the lower inner target in LSN configuration; the power deposition increases quickly at the upper outer target while remains unchanged at the upper inner target in upper single null configuration; the power deposition increases slightly at the outer targets while shows no obvious variation at the inner targets in double null configuration. The radiated power measured by the extreme ultraviolet arrays increases significantly due to helium gas injection, especially in the outer divertor. The edge parameters are measured by reciprocating probes at the outer midplane, showing that the electron temperature and density increase but the parallel Mach number decreases significantly due to the gas injection. Effects of poloidal E × B drifts and parallel SOL flows on the divertor asymmetry observed in EAST are also discussed.

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