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P1.1034 Observation of radiation asymmetry during EAST mitigated plasma disruption by massive gas injection

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In tokamak plasma, disruptions are dangerous events for device safety due to the large energy loss in very short time. Plasma disruption mitigation by massive gas injection (MGI) is an effective heat dissipation method through high radiation [1-3]. The MGI disruption experiments are researched with noble Helium (He) and Argon (Ar) gas injection on EAST. About 45% of plasma thermal energy lost by radiation in Ar gas injection experiments and the value is lower in He gas injection experiments [4]. The first radiation peaking are usually found near the gas injection location. The radiation asymmetries both in toroidal direction and in poloidal direction are observed, which are serious during pre-thermal quench and become weak gradually. The behaviour of radiation asymmetries with He gas injection is different from that with Ar gas injection. In addition, MHD are the general phenomena during the disruption process and the changes of MHD mode structures can affect the radiation peaking. The radiation distribution and radiation peaking are compared for different injected particle quantities. In the coming EAST experimental campaign, one new scattered Lithium pellet injection (SPI) system driven by high pressure gas will be run and some new experiments results will be presented.

References
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