



**Analysis of disruption induced by vertical displacement events on EAST tokamak**

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A total of 178 discharges from EAST campaign on the autumn of 2016 has been browsed. From these discharges, 75 disrupted shots are selected and analyzed to identify their disruption reasons. It is found that the most of disruptions (about 88%) on EAST are caused by the vertical displacement event (VDE), and that the vertical instability can be triggered by the control problem or by the physical event. In these VDE disruptions (66 shots), the 25 shots could be induced by the control errors since there is no obvious physical instability occurred before VDE, and the vertical instability in 18 shots is observed to be triggered by the physical events, i.e. impurity accumulation, tearing mode, mode coupling and strong radiation. In addition, it is viewed that the VDE occurs frequently when the resonant magnetic perturbation (RMP) is applied. The evolution of the vertical instability for those VDE disruptions will be investigated carefully in order to explain the underlying mechanism. Furthermore, a proper criterion is expected to be deduced to predict the VDE disruption.