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Disruption mitigation and avoidance at ASDEX Upgrade M. MARASCHEK, MPI for plasmaphysics, Germany, G. PAUTASSO, B. ESPOSITO, ENEA-Frascati, Italy, G. GRANUCCI, IFP-CNR, Italy, J. STOBER, W. TREUTTERER, all EURATOM Ass., ASDEX UPGRADE TEAM — Disruptions are a major concern for tokamaks and in particular for ITER. They cause high heat loads during the thermal quench and high mechanical forces during the subsequent current quench. The generation and loss of runaway electrons (highly accelerated electrons carrying large fractions of the plasma current) can produce damage to the vessel structures. Therefore, schemes are implemented in present tokamaks to mitigate or to even avoid them. Mitigation has been proven to be effective through the injection of noble gases causing a reduction of the thermal heat load by radiation and a reduction of the mechanical forces. In addition 25% of the required density for the collisional suppression of runaways in ITER has been reached. For the trigger of the noble gas injection a locked mode detector is routinely used at ASDEX Upgrade. An extension to more complex precursors is planed. A different approach has been used for disruption avoidance by injecting ECRH triggered by the loop voltage increase before the disruption. The avoidance of an ongoing density limit disruption has been achieved when the ECRH is deposited at resonant surfaces where MHD modes, such as the m=2/n=1, occur. Present schemes for the mitigation and eventually avoidance of disruptions will be discussed.

Marc Maraschek
MPI for plasmaphysics, Germany

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