

## **Runaway electrons in JET disruptions.**

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The generation of runaway electrons is sometimes observed in JET disruptions. The appearance of runaway electrons is usually detected with the soft and hard X-ray and neutron diagnostics. The large population of high-energy (typically, several MeV) runaway electrons generated at the plasma current quench stage can often form the runaway plateaus.

This report presents the results of recent developments in the understanding of the main dependencies of the runaway process on plasma parameters and disruption conditions. More than 200 recent disruptions with and without runaway electrons generation have been analyzed. Experimental data has revealed that runaway electrons already exist at an early stage of the disruption. Low-energy runaway electron populations were observed at the onset of disruptions using soft X-rays diagnostic. The further development of the runaway process depended on several plasma parameters. The runaway electrons were usually not detected in disruptions with a relatively high electron temperature ( $\sim 100$  eV) measured immediately before the plasma current quench phase. There are preliminary indications that the application of the auxiliary heating may affect the runaway current plateau but not the hard X-rays and neutron emission observed at the current quench stage.

\* See appendix in J. Pamela et al., Fusion Energy 2002 (Proc. 19<sup>th</sup> Int. Conference Lyon, 2002).