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EX/P8-05: Latest Progress in Studies of Runaway Electrons in JET

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Latest disruption experiments in JET with carbon-fibre composite (CFC) in plasma facing components (PFC) have been carried out using either Massive Gas Injection or constant puff. These studies provided new data and further update of the database on disruption generated runaway electrons (RE). Temporal and spatial dynamics of RE beams have been studied using inverse reconstruction of the measured hard and soft X-rays emission during RE plateaux. Energy spectra of RE have been measured. Data is used in modelling of RE generation in the presence of spatial dynamics of current carrying channel and in simulations of interaction of RE beams with PFC in JET. First operations of JET with ITER-like Wall (ILW) showed that disruptions in new all-metal environment do not favour to runaway process. More than 10 times slower plasma current quenches that in experiments with CFC and electron temperatures about 100 eV have been measured. However, many RE generation events have been detected by HXR diagnostics during steady-state stages of discharges in JET with ILW. Modelling of the evolution of these discharges using simulation tool JETTO confirmed the possibility for significant RE generation.

Country or International Organization of Primary Author

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Collaboration (if applicable, e.g., International Tokamak Physics Activities)

JET-EFDA

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