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Parameters of Runaway Electrons in JET

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The database on runaway electrons (RE) collected in JET with plasma facing components based on carbon-fibre composite tiles (JET-C) has been updated by recent results of experiments on disruptions and RE generation in JET with full-metal ITER-like wall (JET-ILW). Unlike the first operations of JET-ILW, which didn't reveal the probability of runaway electron generation, new experiments with Massive Gas Injection (MGI) did. In these studies the runaway generation process has been mapped on following JET operation parameters - toroidal magnetic fields, pre-disruption plasma densities and on fractions of argon used at MGI in mixture with deuterium (10÷100%) - for future RE suppression experiments. New results on runaway generation trends and disruption physics have been obtained. A significant extension of runaway electron generation boundary to the lower magnetic fields (up to 1 T) was found. RE current (up to 150 kA) has been measured already at 1.2 T. Temporal and spatial dynamics of RE beams have been studied using measured hard and soft X-rays emissions during RE stage. Energy spectra of RE have been measured. Data is used to contribute into the enhancement of the model of RE generation in the presence of spatial dynamics of current carrying channel and to the analysis of the interaction of RE beams with plasma facing components.

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