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Preliminary investigations of Equilibrium Reconstruction Quality during ELMs and ELM-free phases on JET

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On JET the magnetic topology is normally derived from the code EFIT, which solves the Grad-Shafranov equation with constraints imposed by the available measurements, typically the pick-up coils. Both the code and the measurements are expected to perform worse during ELMs. To assess this hypothesis, various statistical indicators, based on the values of the residuals and their probability distribution, have been calculated. They all show that the quality of EFIT reconstructions is clearly better in absence of ELMs. The use of internal magnetic measurements, in particular the Faraday rotation measured by polarimetry, does not change significantly the results of the analysis. How the responsibility, for the lower quality of the reconstructions, is shared between the measurements and EFIT is a subject under investigation.

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