

Abstract Submitted
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In-situ investigations of material migration in recent JET campaign
A. KRETER, Institut für Energieforschung - Plasmaphysik, Forschungszentrum Jülich, Association EURATOM - FZJ, Trilateral Euregio Cluster, Germany, ON BEHALF OF TFE AND JET EFDA TEAM — To improve understanding of material erosion and migration in view of the planned ITER-like wall in JET, a set of in-situ material migration diagnostics has recently been installed, including quartz microbalance (QMB) systems. These techniques are focused on the identification and the quantification of processes determining the carbon migration by time resolved measurements. Studies across the recent JET 2006-07 campaigns show that the major characteristics of carbon transport in the divertor can be summarised as follows: (i) The transport is mainly line-of-sight, with particles predominately sputtered at the strike point (SP) positions and travelling over distances of up to several centimetres across the magnetic field; (ii) The amount of eroded carbon depends on the surface type. The highest rates are obtained after a shift of the strike-point to the “fresh” layers deposited in previous discharges (“history” effect); (iii) there is a clear non-linear increase of the erosion rates in the inner divertor with increasing ELM energies. This ELM induced erosion is attributed to the thermal decomposition of carbon layers.

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