

Diagnostics for Erosion-Redeposition measurements in fusion devices

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Plasma Facing Component (PFC) in ITER will be exposed to high heat load and particle fluxes inducing erosion of materials due to thermal effects and sputtering. Eroded material can produce large amounts of dust which need to be monitored in order to prevent safety hazard. Redeposition of carbon materials, in the presence of hydrogen atoms will induce tritium codeposition in the carbon layers. Due to the limited amount of Tritium inventory allowed in the vacuum vessel, Tritium retention may drastically reduce the operation of the tokamak.

Therefore, monitoring of the erosion/redeposition in present tokamaks is mandatory in order to develop methods allowing controlling this process. Erosion and redeposition diagnostics by means of confocal microscopy and Speckle Interferometry, developed in CEA Cadarache, will be presented and their potential application to ITER will be discussed.