

Plasma-wall interactions in fusion devices

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The international project ITER in Caderache, France, should achieve a positive energy balance in magnetically confined plasmas for the first time. A key question for the performance will be the influence of the fusion plasma on plasma facing components. The main emphasis of the actual research programs is on the investigation of the processes of plasma wall interaction, erosion, transport and deposition of material especially for long time operation in order to find technological solutions for an economical operation of fusion reactors. In the past significant improvements of plasma operation in fusion experiments were obtained with carbon walls. But the application of carbon might be avoided due to activation aspects. A review about the actual research on plasma wall interaction and the application of technical plasmas for treatment of plasma facing components will be presented. Special attention will be given on spectroscopic methods for the diagnostic of plasma edge.