

WALL CONDITIONING OF FUSION DEVICES BY REACTIVE PLASMAS *

Jörg WINTER

Institut für Plasmaphysik, Kernforschungsanlage Jülich GmbH, P.O. Box 1913, D-5170 Jülich, Fed. Rep. Germany

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Conditioning of the plasma-facing components of fusion devices like inner-wall surfaces and limiters is a necessary prerequisite for the obtention of pure and stable fusion plasmas. Radiofrequency assisted dc-glow discharges in various gases (hydrogen, oxygen, methane) are a flexible tool to produce reactive species, which deplete the wall surfaces from reducible oxygen- and carbon-compounds, or allow to plasma-chemically deposit well defined thin layers onto them. The carbonization technique, i.e. the in-situ deposition of amorphous hydrogenated carbon layers (a-C:H) and the resulting effects on tokamak plasmas are discussed in detail. Its application leads to significantly improved plasma performance. After its development and characterization at the Jülich tokamak TEXTOR it is now being used worldwide.

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