

Chemical Erosion Of DIII-D Lower Divertor Tiles

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CUFIF-q 718 90 - - - UNT Digital Library 1 Summary of carbon E/R rates in DIII-D lower divertor for attached (red) and detached (black) divertor. Hatched areas from height measurements on DIII-D tiles Chemical erosion of DIII-D lower divertor tiles - ResearchGate Ceramic Matrix Composites: Materials, Modeling and Technology - Google Books Result DiMES Studies of Temperature Dependence of Carbon Erosion and . Measurements of chemical erosion of ATJ graphite . terizing the divertor environment, chemical erosion of tile samples recently removed from the DIII-D. Nuclear Fusion Research: Understanding Plasma-Surface Interactions - Google Books Result The chemical erosion properties of DIII-D tokamak graphite tiles are examined . Inferred yields in detached ($T_e = 2$ eV) plasmas are much lower ($\sim 0.01\%$) than DIII-D divertor tile samples are exposed in the PISCES-B linear plasma device. Get PDF (502K) - Wiley Online Library The Effect Of Detachment On Carbon Divertor Erosion/Redeposition . Oct 4, 2006 . deuterium co-deposition in the DIII-D divertor was observed under detached conditions. A insertion of material samples into the lower divertor floor, exposing chemical re-erosion, two exposures of the tile gap sample were Chemical erosion of DIII-D divertor tile specimens . Measurements for 50 eV/D + incident on the lower divertor resulted in erosion yields which are the same as Measurements of chemical erosion of ATJ graphite by low energy D . Aug 16, 2010 . lower divertor of DIII-D to study integrated plasma materials interaction diagnostics. (b) DiMES sample, metallic films and surrounding graphite tile . were found to have a chemical erosion yield, $Y_{chem} = 1.5 \times 10^{-5}$, consistent Engineering, Aerospace upper limit of $Y = 5 \times 10^{-5}$ for the chemical sputtering yield. 1) Typical divertor net erosion rates of graphite in DIII-D during attached plasma to the tiles of the DIII-D lower divertor, which are also graphite (Union-Carbide ATJ), making. Chemical Erosion in DIII-D - TSpace - University of Toronto . of divertor attachment to study carbon erosion in the DIII-D tokamak divertor. higher Y_{chem} than the divertor tiles despite identical incident plasma conditions. Microwave discharges at low pressures and peculiarities of the processes in MkIIA divertor, using 'reference' chemical erosion yields of order 1% – while higher than . mas on DIII-D [9] with ne . Due to relatively low D^+ fluxes to tile 4 –. A Detailed Study of Carbon Chemical Erosion in L . - IOPscience Technical Paper / DIII-D Tokamak - Plasma Heat and Particle Exhaust . and energy fluences have reduced the chemical erosion yield of lower-divertor tiles. inserted into the lower divertor of DIII-D and exposed to selected plasma discharges. Net material In particular, increased chemical erosion by cold hydrogenic atoms at featuring a simulated tile gap 2 mm wide and 15 mm deep (Fig. 1). Chemical erosion of DIII-D lower divertor tiles - ScienceDirect.com The evolution of carbon release from the DIII-D lower divertor tiles is studied using . This result indicates that a substantial reduction in carbon chemical erosion, DiMES Contributions to PMI Understanding - Purdue University JET are described along with the plans for the new Mark I1 divertor probe . very valuable for divertor physics and was essentially duplicated on JT60 and DIII-D. These consisted of 16 single Langmuir probes in the upper and lower X-point tiles. . measurements of target tile erosion [4] which showed that chemical. ?[PDF]Suppression of net erosion in the DIII-D divertor with detached . Mar 15, 2001 . Suppression of net erosion in the DIII-D divertor with detached plasmas Chemical erosion of DIII D lower divertor tiles · Study of gross and net Plasma-Surface Interaction Studies on DIII-D and Their Implications . Spectroscopic measurements in the DIII-D lower divertor have shown an order of magnitude decrease in the brightness of the CD emission band over the course . format psi Nov 7, 2005 . erosion due to sputtering, including chemical sputtering for a C wall [25]. .. are performed at the end of experimental campaigns so that tiles may . deuterium fuelled detached divertor operation in DIII-D (lower part of figure A detailed study of carbon chemical erosion in L-mode plasmas in . Apr 3, 2009 . hydrocarbon dissociation and transport in the DIII-D tokamak. Citation into the DIII-D lower divertor in a manner imitating natural release by chemical erosion. emitted by chemical sputtering from surrounding carbon tiles. The distributed impact on graphite with chemical erosion yields, $Y_{chem} = C$, as. Advances in the modeling of chemical erosion/redeposition of . ?Porous plug gas injection systems for studies of hydrocarbon dissociation and transport in the DIII-D tokamak. used to inject methane into the DIII-D lower divertor in a manner imitating natural release by chemical erosion. to that seen by hydrocarbons being emitted by chemical sputtering from surrounding carbon tiles. profiles observed in DIII-D's graphite-tiled divertor under low power, L-mode . hydrocarbon molecules generated by chemical erosion of divertor tiles under the Recent Results on Carbon Erosion, Migration and Re-deposition in . Nov 30, 2004 . Spectroscopic measurements in the DIII-D lower divertor have shown an order of magnitude decrease in the brightness of the CD emission Downloadable Full Text Sep 17, 2003 . DIII-D. A detailed study of carbon chemical erosion in carbon erosion in the DIII-D divertor Langmuir probe clusters on lower divertor tiles. Reduction of divertor carbon sources in DIII-D Material erosion and migration in tokamaks - CRPP www 7, 4, AACMQ84110, Chemical erosion of DIII-D lower divertor tiles, Wright, Graham Michael, UNIVERSITY OF TORONTO (CANADA), MSc, 2003, 43. Imp. Control - The FIRE Place - Princeton Plasma Physics Laboratory At 200° C carbon deposition down a simulated tile gap was reduced by about a factor of 2 . Micron size carbon dust introduced in the lower divertor of DIII-D penetrated core plasma Chemical erosion rate of carbon and hydrocarbon films by measurement of ci kinetic temperature in methane puffing . - CiteSeer DIVERTOR EROSION IN DIII-D '& - OSTI gives a constant divertor tile surface temperature. phase. neutron energy spectrum and lower temperatures than we anticipate on chemical erosion,7 radiation-enhanced sublimation,8*g .. iter and divertor on both DIII-D (Ref. 22) and Observations on chemical erosion in DIII-D and PISCES - IOPscience DIII-D DiMES and MiMES Materials Evaluation Systems - SUNIST Quantification of Chemical Erosion in the Divertor of the DIII-D Tokamak. Doctor of with a detached divertor, i.e., a low chemical sputtering yield. Results and Figure 35: Chemical erosion yield for plasma-exposed graphite tiles vs. surface. Chemical erosion of DIII-D divertor tile specimens erosion, and the

corresponding deuterium retention of long term exposure tiles in DEI-D. Deuterium taken from divertor tiles mounted in DIII-D for a full year's campaign. Along with . DiMES sample along the major radius of DIU-D lower divertor. . This is an important parameter for both chemical erosion and deuterium. Porous plug gas injection systems for studies of hydrocarbon . May 6, 2008 . DIII-D Divertor Diagnostics and Erosion/Redeposition. Measurements SOL/ edge n_e , T_e . (including very low T_e in detached plasma),.