

Abstract Submitted
for the DPP97 Meeting of
The American Physical Society

Sorting Category: 5.1.1.2 (experimental)

Carbon Pathways to the Core Plasma in DIII-D¹ W.P. WEST AND THE DIII-D DIVERTOR TEAM, General Atomics — Analysis of the behavior of carbon emission in the divertor and core plasma in both D and He plasmas in DIII-D will be reported, and the inferences on the importance of the various C sources to the core plasma will be discussed. The dominant impurity in DIII-D is carbon, resulting from the plasma facing wall being mostly graphite. Carbon can reach the core plasma from several sources, including: 1) physical sputtering from divertor strike points, 2) chemical sputtering from divertor walls, and 3) physical sputtering from main chamber walls by energetic charge exchange neutrals. The effect of chemical sputtering should be greatly reduced in a He plasma, while physical sputtering in the divertor should be reduced at detachment. Similar plasmas have been run with both He and D, including ELMing H-modes that transition to detached plasmas, and ELM-free VH-mode plasmas. VUV spectroscopy, high resolution visible spectroscopy as well as 2D images of visible emission of carbon and D_α were obtained in these discharges. The core plasma C^{+6} density profiles were measured using charge exchange recombination spectroscopy.

¹Work supported by U.S. Department of Energy under Contract DE-AC03-89ER51114.

Prefer Oral Session
 Prefer Poster Session

W.P. West
west@gav.gat.com
General Atomics

Date submitted: July 7, 1997

Electronic form version 1.2