

Abstract Submitted
for the DPP96 Meeting of
The American Physical Society

Sorting Category: 5.1.1.2 (Experiment)

Spectroscopic Characterizations of the DIII-D Divertor,¹ R.C. ISLER, C.C. KLEPPER, Oak Ridge National Laboratory, R.D. WOOD, M.E. FENSTERMACHER, Lawrence Livermore National Laboratory, A.W. LEONARD, General Atomics — Radiative losses from the DIII-D divertor have been characterized for various types of discharges by making extensive use of vacuum ultraviolet spectral lines in conjunction with a collisional-radiative model. Carbon and hydrogen account for essentially all the emission with the carbon fraction usually between 50% and 80% of the total. Ion densities are estimated from a simplified approach to modeling using a one-dimensional transport code. The concentrations range from 2%–6% of the electron density in partially detached plasmas, but it appears that carbon may supply most of the electrons in the divertor in attached plasmas. Ion temperatures are measured from Doppler broadening of spectral lines after accounting precisely for the Zeeman/Paschen-Back effect. In general, the ion temperatures agree well with the electron temperatures at the location of the radiating ions as deduced from spectral line ratio measurements and from the modeling.

¹Work supported by the U.S. DOE under Contract Nos. DE-AC05-96OR22464 with Oak Ridge National Laboratory managed by Lockheed Martin Energy Research Corp. and DE-AC03-ER51114 with General Atomics.

- Prefer Oral Session
 Prefer Poster Session

Ralph C. Isler
ilser@fed.ornl.gov
Oak Ridge National Laboratory

Special instructions: P-2-12

Date submitted: August 1, 1996

Electronic form version 1.1