

Abstract Submitted
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Sources for Carbon Production in the DIII-D Divertors¹ R.C. ISLER, ORNL, N.H. BROOKS, W.P. WEST, GA, D.G. WHYTE, UCSD — Release mechanisms for divertor-produced carbon impurities have been examined through analysis of C I atomic spectra and of CD and C₂ molecular bands. Previous studies had shown that chemical sputtering had steadily declined with gettering and plasma conditioning of the graphite tiles in the lower divertor. This process again became evident from the appearance of CD bands in the recently installed, upper, radiative divertor, particularly in the neighborhood of unconditioned tiles. C₂ bands in the same location also indicate significant carbon production through sublimation from hot spots. Atomic carbon is almost always observed, even in the absence of molecular species, a possible indication that physical sputtering or radiation-enhanced sublimation may play an important role. This conclusion is supported by the observation that the temporal behaviors of atomic and molecular emissions are frequently quite different. Efforts to deduce the source of C I from spectral line profiles have not given clear results; the analysis is complicated by the fact that atomic carbon tends to thermalize rapidly by collisions with deuterium

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- Prefer Oral Session
 Prefer Poster Session

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