

Abstract Submitted  
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**Porous Plug Injection System for Studies of Hydrocarbon Dissociation and Transport in DIII-D**<sup>1</sup> J.W. DAVIS, A.G. MCLEAN, P.C. STANGEBY, A.A. HAASZ, U. Toronto, S.L. ALLEN, R. ELLIS, M.E. FENSTER-MACHER, M. GROTH, LLNL, B.D. BRAY, N.H. BROOKS, W.P. WEST, C.P.C. WONG, GA, D.G. WHYTE, UW, D.L. RUDAKOV, UCSD, J.G. WATKINS, SNL, S. BREZINSEK, FZ-Juelich — Calibrated spectroscopic measurements of hydrocarbon dissociation fragments in a tokamak divertor were obtained by admitting methane through a porous graphite surface, such that fragments of the injected molecules returned to a carbon surface in a similar way to fragments due to natural chemical sputtering. The porous surface was made from a graphite plate with 1004 holes 0.25 mm in diameter spread over a 3 cm region, and was viewed by calibrated spectrometers. The gas flow rate was  $7-40 \times 10^{17}$  CH<sub>4</sub>/s, simulating expected chemical erosion yields. Intensities of CD band and CI and CII line emissions were recorded. It was thereby established that chemical sputtering contributed a minority of the carbon atoms naturally sputtered from the outer target.

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