Abstract Submitted
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An Upgraded Porous Plug Injection System for Studies of Hydrocarbon Dissociation and Transport in DIII-D[1] A.G. MCLEAN, J.W. DAVIS, P.C. STANGEBY, A.A. HAASZ, UTIAS, S.L. ALLEN, R. ELLIS, M.E. FENSTERMACHER, M. GROTH, LLNL, B.D. BRAY, N.H. BROOKS, W.P. WEST, C.P.C. WONG, GA, D.G. WHYTE, U. Wisc., D.L. RUDAKOV, UCSD, J.G. WATKINS, SNL, S. BREZINSEK, Juelich — The objective of the Porous Plug Injector (PPI) is to obtain calibrated spectroscopic measurements of dissociation fragments resulting from hydrocarbon influx in a tokamak divertor. This is done by admitting methane through a porous surface, >90% graphite, such that the injected molecules "see" a local carbon surface, similar to the re-deposition environment seen by molecules emitted by chemical sputtering. Following its initial use in DIII-D DiMES, the PPI has been significantly upgraded to include a finer porous graphite cap, a small orifice flow restrictor for precise gas control, and a built-in Langmuir probe to make direct measurement of possible perturbation to the local plasma as a consequence of gas injection. Design of these and other improvements are presented.

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