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A Partial Pressure Diagnostic for the Upper Divertor Plenum of DIII–D[1] N.H. BROOKS, General Atomics, D.F. FINKENTHAL, Palomar College, G. LABIK, Princeton Plasma Physics Laboratory, M.R. WADE, Oak Ridge National Laboratory — A Penning gauge will be installed in the upper divertor plenum of DIII–D in 1999 to measure partial pressures of D_2, He, Ne, Ar, and Kr. Optical detection of the neutral atomic line emission produced in the vacuum gauge will be provided by an "active" spectrometer (pending U.S. patents S/N 08/838,298 and 09/093,713). In a test of this diagnostic on a laboratory vacuum station, a neon partial pressure of 3×10^{-6} bar, in a mixture of neon and deuterium with a gauge pressure of 1×10^{-3} bar, was successfully measured with a time resolution of 100 ms and an accuracy of 33%.[2] This result represents a twentyfold improvement in limiting sensitivity over that obtained with conventional methods of optical detection. Differential pumping of the gauge through a controllable iris will permit its operation over a wide range of pressure in the divertor plenum.

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[2]N.H. Brooks *et al.*, Rev. Sci. Instrum., to be published.

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☐ Prefer Oral Session
☒ Prefer Poster Session

Special instructions: DIII–D Poster Session II (divertor physics, disruptions, RF, & diagnostics), immediately following Garstka

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