

Abstract Submitted for the Eleventh Topical Conference  
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Visible Spectroscopy in the DIII-D Divertor,<sup>\*</sup> N.H. Brooks, D.T. Fehling,<sup>†</sup> D.L. Hillis,<sup>†</sup> C.C. Klepper,<sup>†</sup> N. Naumenko,<sup>‡</sup> S. Tugarinov,<sup>#</sup> *General Atomics* — Spectroscopy measurements in the DIII-D divertor have been carried out with a survey spectrometer which provides simultaneous registration of the visible spectrum over the region 400–900 nm with a resolution of 0.2 nm. Broad spectral coverage is achieved through use of a fiberoptic transformer assembly to map the curved focal plane of a fast (f/3) Rowland-circle spectrograph<sup>1</sup> into a rastered format on the rectangular sensor area of a two-dimensional CCD camera. Vertical grouping of pixels during CCD readout integrates the signal intensity over the height of each spectral segment in the rastered image, minimizing readout time (<10 ms) may be obtained by selecting for readout just one or two of the twenty spectral segments in the image on the CCD. Simultaneous recording of low charge states of carbon, oxygen and injected impurities has yielded information about gas recycling and impurity behavior at the divertor strike points. Transport of lithium to the divertor region during lithium pellet injection has been studied, as well as the cumulative buildup on this metal on the divertor targets from pellet injection over many successive discharges.

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<sup>1</sup>Tugarinov et al., Rev. Sci. Instrum. **66**, 603 (1995).