

## ABSTRACT

A video camera system is described that measures the spatial distribution of visible line emission emitted from the main scrape-off layer (SOL) of plasmas in the DIII-D tokamak. A wide-angle lens installed on an equatorial port and an in-vessel mirror which intercepts part of the lens' view provide simultaneous tangential views of the SOL on the low-field and high-field sides of the plasma's equatorial plane. Tomographic reconstruction techniques are used to calculate the 2-D poloidal profiles from the raw data, and 1-D poloidal profiles simulating chordal views of other optical diagnostics from the 2-D profiles. The 2-D profiles can be compared with SOL plasma simulations; the 1-D profiles with measurements from spectroscopic diagnostics. Sample results are presented which elucidate carbon transport in plasmas with toroidally uniform injection of methane and argon transport in disruption mitigation experiments with massive gas jet injection.