

**Abstract Submitted for the 53rd Annual Meeting  
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Category Number and Subject:

☐ Theory      ☒ Experiment

**Comparison of Sheath Power Transmission Factor for  
Neutral Beam Injection and Electron Cyclotron Heated  
Discharges in DIII-D,\*** D.C. Donovan, D.A. Buchenauer, J.G.

Watkins, *SNL*; A.W. Leonard, *GA*; C.J. Lasnier, *LLNL*; P.C. Stangeby, *U Toronto*— The sheath power transmission factor (SPTF) is examined in DIII-D with a new IR camera, a more thermally robust Langmuir probe array, fast thermocouples, and a unique probe configuration on the Divertor Materials Evaluation System (DiMES). Past data collected from the fixed Langmuir Probes and Infrared Camera on DIII-D have indicated a SPTF near 1 at the strike point. Theory indicates that the SPTF should be approximately 7 and cannot be less than 5. SPTF values are calculated using independent measurements from the IR camera and fast thermocouples. Experiments have been performed with varying levels of electron cyclotron heating and neutral beam power. The ECH power does not involve fast ions, so the SPTF can be calculated and compared to previous experiments to determine the extent to which fast ions may be influencing the SPTF measurements, and potentially offer insight into the disagreement with the theory.

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