Examining Diagnostic Capability for Determining Divertor Neutral Sourcing to the Pedestal on DIII-D* MORGAN SHAFER, ALEXIS BRIESEMEISTER, JOHN CANIK, JIN MYUNG PARK, EZEKIAL UNTERBERG, Oak Ridge National Laboratory, ANTHONY LEONARD, HOUYANG GUO, AUNA MOSER, General Atomics — Neutral fueling from the divertor plays a key role in setting the density pedestal, but can not yet be predicted via numerical models and thus remains a crucial variable in predictive core-edge coupling. New neutral diagnostics are planned to address this issue by constraining predictions of neutral density from the divertor through the SOL into the pedestal: (a) Lyman-alpha imaging and (b) extended poloidal coverage of neutral pressure gauges. Forward modeling diagnostic responses across expected pedestal neutral fueling rates is used to estimate the diagnostic sensitivity and range of applicability. Modeled neutral source rates are obtained through interpretive modeling with the OEDGE code of experiments performed across the range of DIII-D divertor baffling configurations and gas puffing rates that result in a range of density profiles Additional forward modeling with the core/edge coupling code CESOL will be used and compared against interpretive analysis. *Work supported by US DOE under DE-AC05-00OR22725, DE-FC02-04ER54698.

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