

Initial Results of the High Resolution Edge Thomson Scattering Upgrade at DIII-D

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Validation of models of pedestal structure is an important part of predicting pedestal height and performance in future tokamaks, especially for achieving burning plasma conditions. The Thomson scattering diagnostic at DIII-D has been recently upgraded in support of validating these models. Spatial and temporal resolution, as well as signal to noise ratio, have all been enhanced in the pedestal region. This region is now diagnosed by 20 view-chords with a spacing of 6 mm and a spot size of just under 5 mm sampled at a rate of up to 230 Hz (7 lasers). When mapped to the outboard midplane, this corresponds to ~3 mm radial spacing. With these upgrades, it is now possible to resolve the H-mode pedestal width in a single laser pulse. This paper will present the design and initial results of the system.

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