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Expansion of the Thomson Scattering Diagnostic on DIII-D¹ THOMAS CARLSTROM, F GLASS, D DU, D TAUSSIG, R BOIVIN, General Atomics — The Thomson scattering diagnostic on DIII-D consists of 3 laser beam lines, 10 lasers, 3 collection lenses, and 54 spatial locations. Recently the system has been expanded to include the choice of 8 spatial points in the divertor to be relocated to the upper divertor or redistributed as supplemental points to the core systems. In addition, the lower divertor system can be moved to a smaller radius using in-vessel mirrors and optics to measure high triangularity shaped plasmas. Currently, 16 additional polychromators are being built to permanently provide upper divertor and additional core measurements. In-vessel lenses and fiber optics are being installed so that 3 locations inside the SAS divertor can be measured. Low $T_{\rm e}$ (<5 eV) capability is being added to all the core polychromators in order to make measurements during disruption mitigation and run-away electron experiments. Future expansion includes adding more lasers to the core horizontal and divertor systems, building a scanning 2D divertor system, adding a 20 kHz burst mode laser to study transients, and adding a wide angle lens to the core horizontal system so that midplane measurements can be extended to the plasma edge for better comparison with other diagnostics. Details of the designs and results are presented.

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