

Abstract Submitted
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Investigation of transient phenomena on MAST using high resolution Thomson scattering R. SCANNELL, M.J. WALSH, M. DUNSTAN, Culham Laboratory, MAST TEAM — The MAST tokamak is equipped with high spatial resolution Ruby laser and high time resolution Nd:YAG laser TS diagnostics. The Nd:YAG lasers are viewed by two separate sets of optics. One of these lens systems views the core region and measures at spatial resolution of 2.5-4cm and the other examines the plasma edge with 1cm resolution. This newly installed edge system has already produced a number of important results. In H-mode and L-mode filaments have been observed using laser time separations of 1-20 μ s. The high spatial resolution has allowed determination of the evolution of the outboard pressure pedestal, which plays a critical role in determining plasma stability. The variable time separation between lasers has also been exploited to study pellet deposition and retention in the plasma. A major upgrade to the core Nd:YAG system is now being planned. It is proposed to replace the current four lasers with a combined sampling rate of 200Hz at 1.0J with eight lasers with a combined sampling rate of 240Hz at 1.6J. The increase in laser energy together with new optics will allow the system to sample at high spatial resolution.

Stanley Kaye
Princeton Plasma Physics Laboratory

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