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Recent results from MAST spherical tokamak ANTHONY FIELD, Culham Laboratory, MAST TEAM — Following installation of a new PINI source, the MAST spherical tokamak has been operating with up to 3.8 MW of NBI heating. The scaling of confinement could hence be determined over a greater range of power and current and integrated analysis of diagnostic data has facilitated transport analysis. First particle confinement data from pellet fueled plasmas has also been obtained. Density peaking in L-mode has been found to scale with normalised current density as in conventional tokamaks. Off-axis NBI current drive has been studied in extreme SND discharges. A new 28 GHz RF system has generated and sustained 33 kA of plasma current without the solenoid and EBW assisted start-up has also been demonstrated. Internal coils have been installed for ELM control and to excite TAE modes and study their damping. The structure and evolution of the edge radial E-field has been measured with a new edge spectroscopy system and first measurements of core density turbulence are available from a BES system. Further results on ELM structure, SOL filaments and the divertor plasma have also been obtained using improved edge diagnostics.

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