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Active MHD spectroscopy at JET ALEXANDER KLEIN, MIT, DUC-CIO TESTA, AMBROGIO FASOLI, Ecole Polytechnique Federale de Lausanne, JOSEPH SNIPES, MIT, EFDA-JET CONTRIBUTORS TEAM — Active MHD spectroscopy on the JET tokamak is accomplished using an array of active antennas which excite stable toroidal Alfvén eigenmodes (TAE's), and with synchronous detection circuitry for measuring plasma response. Recently, new antennas were installed which extend the regime for studies to medium toroidal mode numbers ($5 < n < 25$). This system will be used to measure damping rates of TAE's in a range of discharges to validate theories that predict stability thresholds and damping rates for ITER. TAE and similar MHD activity can lead to fast ion and alpha particle losses and potentially pose problems for ignition scenarios in a burning plasma. The upgraded TAE diagnostic is described, and preliminary results will be discussed. The possibility of intentionally driving TAE's to cause fast ion transport as a mechanism for burn control in a burning plasma is also elucidated.

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