

Abstract Submitted
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Measurement of Type-I ELM Pulse Propagation in SOL Using MSE/BES Diagnostics in JT-60U¹ TAKAHIRO SUZUKI, NAOYUKI OYAMA, NOBUYUKI ASAKURA, Japan Atomic Energy Agency (JAEA) — Propagation of plasma ejected by type-I ELM (ELM pulse) is measured in scrape-off layer (SOL) in JT-60U, using optical system of motional Stark effect (MSE) diagnostics as beam emission spectroscopy (BES) diagnostics. This MSE/BES diagnostics measures D_α emission from heating neutral beam that is excited by collisions with the ejected plasma, and hence, the emission intensity is proportional to the ejected plasma density. ELM pulse propagation is evaluated as the radial propagation of the plasma density increase in the SOL, after eliminating the background light (e.g. bremsstrahlung) component from the BES signal. Also a conditional averaging technique to eliminate signal intensity modulation induced by photo-elastic-modulator for the conventional MSE diagnostics enables this measurement and the safety factor measurement, simultaneously [1]. Applying the technique to several JT-60U discharges having different global plasma parameters, dependence of ELM pulse propagation on global plasma parameters is investigated.

[1] T. Suzuki *et al.*, Rev. Sci. Instrum. **81** (2010) 043502.

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