

## **Recent Progress with the USTC Reflectometry and Doppler Backscattering Diagnostics Systems on the EAST Tokamak\***

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The USTC reflectometry/Doppler backscattering (DBS) diagnostics systems with a new integrated microwave front-end and vacuum interface recently commenced initial operations on the EAST tokamak. The FM reflectometry system provides measurements of the electron density profile up to  $6.5 \times 10^{19} \text{ m}^{-3}$  using both Q- and V-band, O- and X-mode measurements, with time resolution of tens of microseconds. The DBS system provides eight simultaneous fixed-frequency channels for localized measurements of the laboratory-frame propagation velocity of intermediate wavenumber ( $k_{\theta} \rho_s \sim 1$ ) density fluctuations, as well as turbulence fluctuation levels and frequency spectra with high spatial resolution (cm level), spanning a radial coverage from edge to core. The new systems feature the use of reactor-relevant microwave front-end and transmission line. Details of the integrated system, dual-mode and double-band reflectometry data, and preliminary results of plasma flow and turbulence behavior from DBS in EAST plasmas will be presented.

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