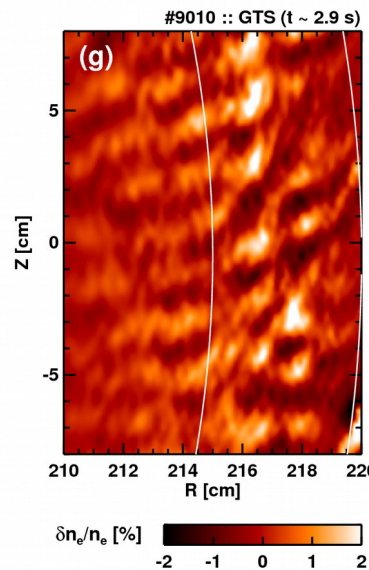
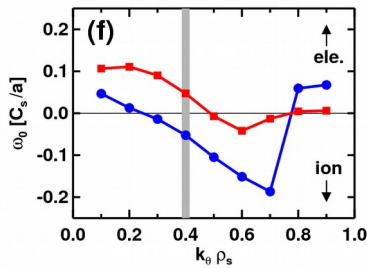
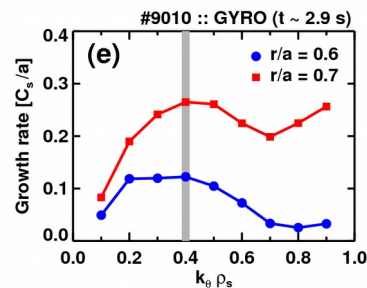
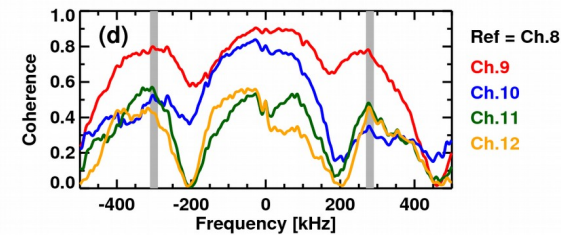
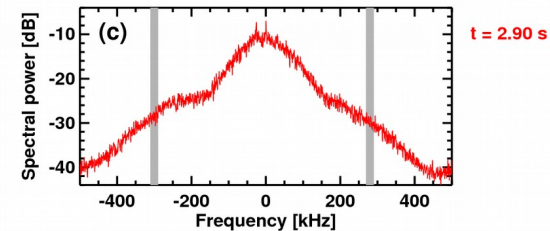
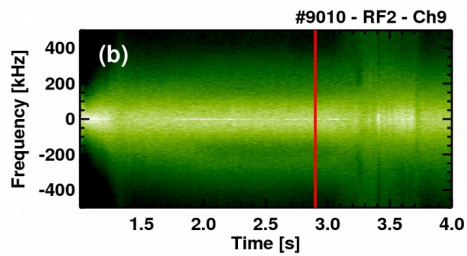
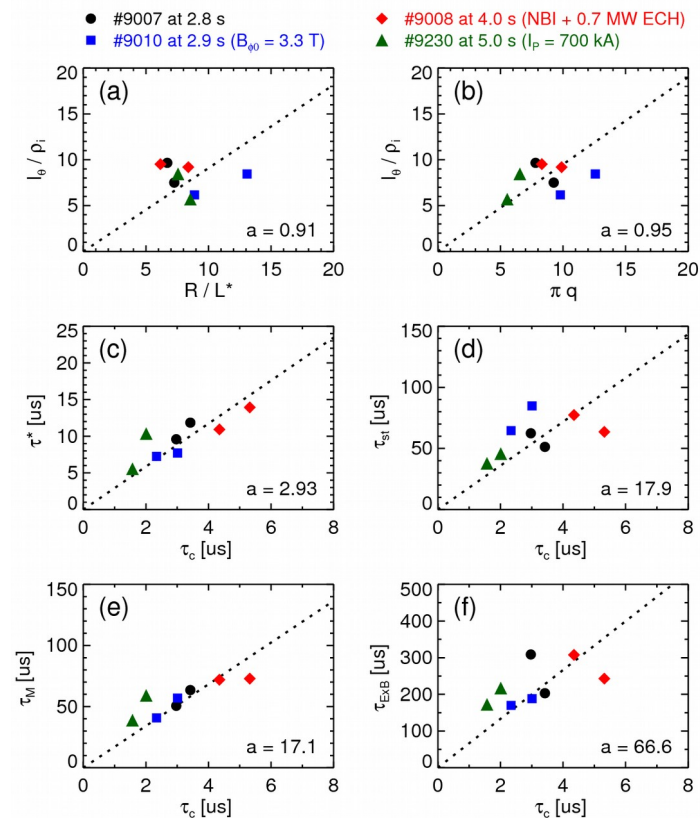


Ion-Scale Turbulence Study in NBI L-mode Plasmas on KSTAR (EX / P4-20)



Linear simulation with GYRO: most unstable at $k_\theta \rho_s \sim 0.4$ ($k_\theta \sim 3 \text{ cm}^{-1}$)

Nonlinear simulation with GTS: $\lambda \sim 2-3 \text{ cm}$ ($k_\theta \sim 2-3 \text{ cm}^{-1}$)



- Broadband fluctuations with their peak frequencies at **200-400 kHz** were observed by the multi-channel MIR system in NBI L-mode plasmas.
- Poloidal wavenumbers ($k_\theta \sim 3 \text{ cm}^{-1}$) of the fluctuations were estimated from the frequencies and poloidal rotation velocities, and were consistent with those from linear and nonlinear gyro-kinetic simulations.
- Poloidal correlation lengths and correlation times of the fluctuations were estimated using a time-delayed cross correlation analysis.

- Poloidal correlation lengths ($l_\theta / \rho_i \approx 5-10$) and correlation times ($\tau_c \approx 2-6 \mu\text{s}$) of the measured fluctuations showed linear relations with characteristic scales relevant to the ion-scale turbulence.