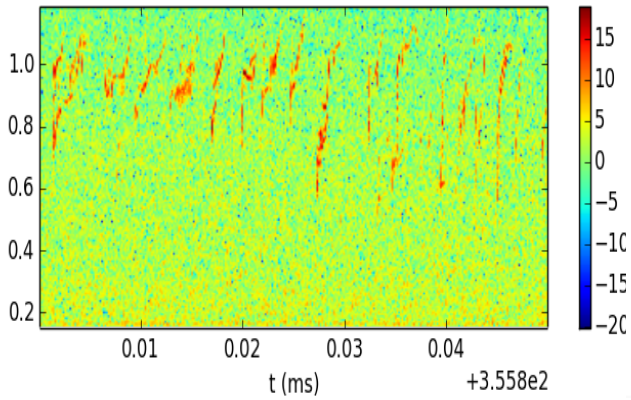
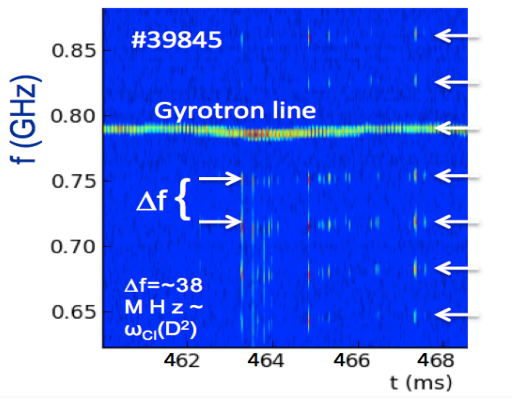
Observation of Short Time-scale Spectral Emissions at Millimeter Wavelengths with the New CTS Diagnostic on the FTU Tokamak (A.Bruschi et al. EX/P8-23)

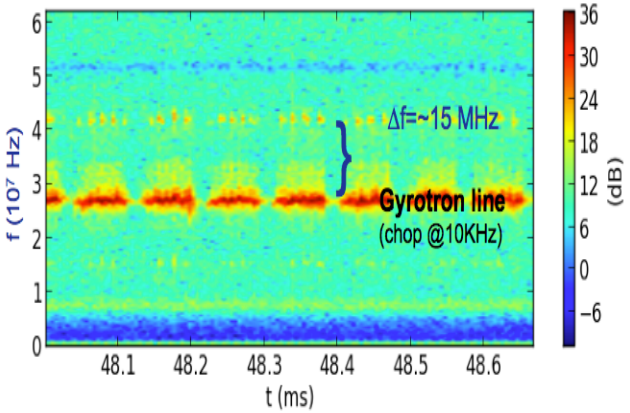
- Collective Thomson Scattering diagnostic on FTU tokamak was renewed for investigations on the excitation of Parametric Decay Instabilities (PDI) by Electron Cyclotron (EC) beams in presence of magnetic islands and their effects on the EC absorption.
- The acquisition with a fast digitizer allowed observing spectral features with very high time and frequency resolution. Their correlation with magnetic probes and other fast signals from the plasma has been investigated.
- Shots at 3.6, 4.8 and 7.2 T magnetic field were performed, with/without magnetic islands



Fast emissions between 0.5 and 1.1 GHz at microsecond time scale, appear as a sequence of faint lines emitted with a very fast temporal evolution



Sequence of bursts emitted at frequency multiple of the D^2 ion cyclotron frequency, above and below the gyrotron line



Periodic emission at frequency around 15 MHz from the probe frequency with a fast (10-100 kHz) repetition rate, higher than island rotation frequency

Investigation on the sources of the emissions is ongoing using correlation techniques.

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