MHD Phenomena and Disruption Characteristics in SST-1 Early Plasma (EX/P5-30)

- Steady State Tokamak 1 (SST-1) with aspect ratio > 5.2 observes MHD phenomena and disruption characteristics similar to the ones reported by other low, medium and high aspect ratio tokamaks.

- SST-1 experiments (90kA ≤ Ip ≤ 113kA, 2.4 ≤ qa ≤ 4, B_T ~ 1.5T, H_2 Plasma) report MHD instabilities - saw teeth, m/n=1/1 and m/n=2/1 tearing modes.

- MHD regimes such as saw teeth, saw teeth coupled with Mirnov oscillations suggest m/n=1/1 triggering m/n=2/1 tearing mode, which further leads to disruption.

- Probable reason of precursor event or disruption initiating event is the radial plasma movement due to inadequate radial position control, which further leads to thermal quench and consequently current quench.