Overview of SST-1 Up-gradation and Recent Experiments in SST-1 (OV/4-3Ra)

• Steady State Superconducting Tokamak (SST-1) has been up-graded with graphite based First Wall Components.

• Engineering validations of the up-graded SST-1 has been completed and initial plasma experiments have begun in SST-1 after a detailed investigation of eddy characteristics, magnetic NULL, ECH induced break down, equilibrium index optimization etc.

• SST-1 Circular plasmas have attained in excess of 100 kA with typical core density $\sim 1 \times 10^{19} \text{ m}^{-3}$ and core electron temperatures $\sim 200$-$300 \text{ eV}$ having duration in excess of 300 ms corresponding to $q_{\text{edge}} \sim 2.6$.

• SST-1 plasma shows typical MHD characteristics, NTM & island growth characteristics.

• Recent experimental results also show that the electrostatic turbulence is modulated by MHD activity during SST-1 tokamak discharge. Some large-scale coherent structures have been observed indicating the long-distance cross correlation in the poloidal direction.

• SST-1 will now plan for $> 1 \text{ s}$ long plasma with appropriate controls and would focus on confinement and edge plasma transport characteristics apart from disruption mitigation studies in high aspect ratio configurations.