

**EXPERIMENTAL ADVANCED SUPERCONDUCTING TOKAMAK (EAST)
DESIGN, FABRICATION AND ASSEMBLY**

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The Experimental Advanced Superconducting Tokamak (EAST) is a superconducting diverter tokamak constructing in institute of plasma physics. The mission of the EAST project is to develop scientific and engineering issues on the steady state operation of advanced tokamak in China. Long pulse high performance plasma will be the first aim of the experiment.

Superconducting magnet is one of the main design features of the machine. The magnet system consists sixteen superconducting Toroidal Field coils (TF), six Poloidal Field coils (PF), six Central Solenoid coils (CS) and support structures. The TF coils provide a toroidal field of 3.5 Tesla at the plasma center, while the CS and PF coils provide the magnetic field and flux for plasma operation. NbTi cable-in-conduit-conductors (CICC) are used for TF, PF and CS coils. The TF coil is D shape coil, each coil comprises two sextuple pancakes windings, and the two windings are connected with an internal joint and enclosed in a stainless steel case. The CS and PF coils are circular multiple pancake coils. The support structures are composed sixteen multiple-plate supports to reduce the stress due to radial thermal shrink of the magnet system.

The vacuum vessel (VV) is full welded with “D” shaped cross-section and double wall structure, consists of 16 segments and supported by 8 supports. 48 ports are distributed at top, bottom and middle plan. Diverter, passive stabilizer, fast feed back control coil, correction coil and cryopump will be installed in the vessel.

Up to now, all of the coils, vacuum vessel, thermal shields and cryostat have been fabricated and most of the coils, except four big PF coils, have been tested in a test facility. The Tokamak assembly is going on smoothly, the vacuum vessel, VV thermal shields and all sixteen TF coils have been installed in the position already. The cryogenic system, power supply and vacuum pumping system will be ready this summer. We plan to finish the remained task of assembly and cool down the device once this year. The main work of next year will be trial run, debugging and upgrade of heating and current drive system.