

Progress of the HL-2M tokamak

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HL-2M tokamak is a new device in constructing, at Southwestern Institute of Physics, Chengdu, China. The mission is: to operate close-burning and high performance plasma for providing a platform for experimental studies; to develop the key techniques for aiming at the construction of future fusion-reactor; and people training. The layout of HL-2M device is shown in figure.1.

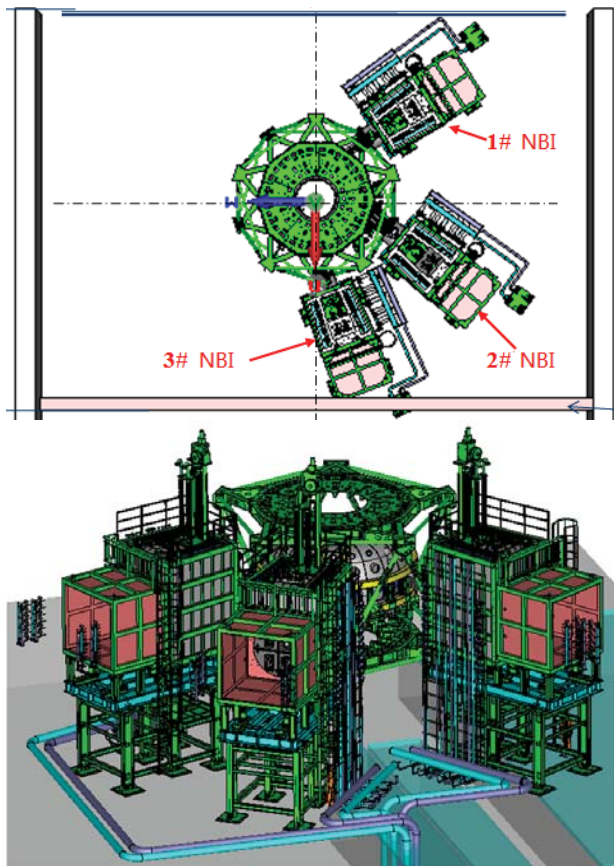


Figure.1 HL-2M Tokamak.

Top) Top-view and bottom) side-view of device

The main parameter of HL-2M is: major radius $R = 1.78$ m, minor radius $a = 0.65$ m, elongation $\kappa = 2.0$, toroidal field $B_T = 2.2$ T, plasma current $I_p = 2.5$

MA, flux $14 \text{ V}\cdot\text{s}$, the plasma pulse length $\tau_p = 6.0$ s, NBI power $P_{\text{NBI}} = 5.0 \times 3 \text{ MW}$ (2 co- and 1 counter injection beam), ECRH power $P_{\text{EC}} = 8.0 \text{ MW}$ and LHCD is about 4.0 MW . all coils are designed using copper conductor. Its 8 pairs poloidal coil can provide the variable plasma shape, specially, can practise some kind of advanced diverter configuration. The typical plasma configurations are shown in figure.2.

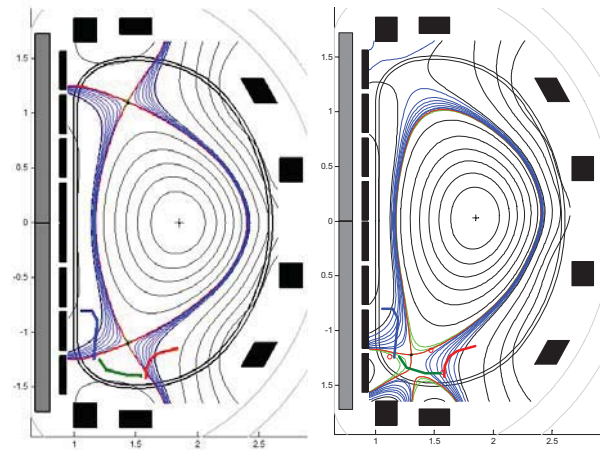


Figure.2 typical configurations of HL-2M. Left) double null, and right) singal null snow-flake divertors

This design obviously promote the flexibility for experimental studies. The vacuum vessel has about 140 windows for the diagnostics, auxillary heating and other needs. All manufacture of the main components of tokamak have been almost finished. The installation is in progressing. 4 motor generator have be completed for providing the plasma pulse power. About 60 kinds of diagnostics are in developing.