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Oral_23: The Progress of ITER Divertor Langmuir Probe design

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Divertor Langmuir probe (DLP) system is one of ITER diagnosis used to measure the divertor parameter profiles such as ion saturation current, electron temperature, density, for ITER advanced control and physics research. The system consists of three components: 1) 400 Langmuir probes installed on the side of monoblock in 5 cassettes. DLPs should sustain 10MW/m2 Steady-state heat load and 20MW/m2 transient-state heat load. With the thermo-mechanical analysis, the structure design of DLP has gone through 3 main versions, and now the full tunsten design has been reviewed and accepted. The preliminary machining and welding process researches are on going. 2) the electronics system, including powersupplies, mode switching and signal conditioning components, will be used for 3 kinds of probe operational mode: Single probe voltage scanning mode, double probe voltage scanning mode and ion saturation current mode. 3) Instrumentation and control system is used to provide scan waveform output for power supply and measured data to CODAC for calculation of Te, ne and ion flux. The work of DLP system is in the preliminary design stage, and we will start our preliminary design review in a year.

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