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Status of EAST 3.5 K subcooling helium cryogenic sytem

To obtain high operating current and magnetic fields of Experimental Advanced Superconducting Tokomak (EAST), it is a good choice to lower the operating temperature of the toroidal field (TF) coils. Beside 4.5 K refrigeration mode, the EAST helium refrigerator has the ability to provide a refrigeration capacity of 1050W at 3.5 K, based on warm compression with cold recovery. It consists of liquid helium Dewar, counter-flow heat exchanger, J-T valve, oil ring pump and so on. The oil ring pump was converted from the SKA303 series liquid ring pump, in particular shaft sealing to decrease the risk of air in-leaks. The EAST sub-cooling helium system was tested twice in cool-down experiments. It took only about one hour to cool down from 4.5 K to 3.5 K. The presentation will give an overview of this subcooling helium system and its last operation performance.

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