



Contribution ID: 134

Type: **Poster**

C1Po1B-01: Design and Construction of a Stop Valve for 1.8K System

Monday 10 July 2023 09:15 (1h 45m)

A 1.8K superfluid 4He system could be used in many cryogenic devices, such as the separation of helium isotopes and the advanced superconducting accelerator. Cryogenic stop valve is one of the most important part of the 1.8K system. Simulation studies on heat transfer were made by ANSYS. According to the simulated data, the heat loss was reduced by 60% when the double heat sinks were welded and the stem tube was made of materials with low thermal conductivity. The seal-technology was brought for the stop valve in the low temperature. The leakage rate of the stop valve was analyzed and tested in the normal temperature and in the low temperature. The result of the tests showed the stop valve has stable valve seat sealing performance.

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Session Classification: C1Po1B: Components I: Valves