



Contribution ID: 3

Type: Talk

## Research Advances in Key Technologies of Ultra-Large Cryo-plants in TIPC of CAS

Wednesday, 12 April 2023 16:00 (20 minutes)

The ultra-large cryogenic refrigeration system refers to the refrigeration system from liquid hydrogen with equivalent refrigeration capacity greater than or equal to 10000 watts at the liquid helium temperature to the superfluid helium temperature zone. It is an indispensable key system in the fields of helium resource development, aerospace engineering, nuclear energy utilization, hydrogen energy utilization, and large scientific devices, and is also a national strategic support equipment. This report introduces the research progress of key core technologies for the serialization of 10000-watt cryogenic refrigerators, such as the process design and integrated design of ultra-large cryogenic refrigeration systems, the stability of high-speed and heavy-load hydrogen/helium gas bearing turbine expanders, the stability of large-flow centrifugal refrigeration compressors, and the internal purification of helium liquors.

Speaker's Title

Prof.

Speaker's Gender

Man

Speaker's Preferred name (if any)

Speaker's Pronouns

He/Him

Speaker's Name

Liqiang LIU

Primary author: Prof. LIU, Liqiang (Technical Institute of Physica and Chemistry, CAS)

Presenter: Prof. LIU, Liqiang (Technical Institute of Physica and Chemistry, CAS)

Session Classification: Room 3 (Geoff Opat Seminar Room)

Track Classification: WG7: Cryogenics, cryomodule and superconducting technology for accelerators