



Contribution ID: 422

Type: **Contributed Oral**

## **C3Or2A-01: Integrated remote cooling system using a GM cryocooler**

*Wednesday 21 May 2025 11:15 (15 minutes)*

Sumitomo (SHI) Cryogenics of America Inc has developed a novel cryogenic cooling system integrating a remote cooling gas flow circuit with a Gifford-McMahon (GM) cryocooler to cool a remote load. This innovative approach eliminates the need for a separate gas flow circuit and circulator, leading to an efficient, compact, and cost-effective solution for various cryogenic applications. This system utilizes helium scroll compressors to supply gas to a GM cryocooler. A portion of the return gas flow from the cryocooler is then diverted into the remote cooling circuit, where it is first cooled by a counter-flow heat exchanger and further cooled by the cryocooler. This cooled gas is then delivered to the remote load through vacuum-jacketed lines before returning to the main system. The system is equipped with a vacuum pump and valves, allowing for independent maintenance and cleaning while ensuring seamless operation of the main refrigeration system. In this paper, we will discuss and present system configuration, cooling performance, and system losses.

**Author:** Mr KOCH, Joseph (Sumitomo (SHI) Cryogenics of America Inc)

**Co-authors:** GANDLA, Santhosh Kumar (Sumitomo (SHI) Cryogenics of America Inc); DUNN, Stephen

**Presenter:** Mr KOCH, Joseph (Sumitomo (SHI) Cryogenics of America Inc)

**Session Classification:** C3Or2A - Remote Cooling and Regenerative Coolers