

Lessons Learned About Helium Cooling of Large Cryogenic Systems

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Abstract— CERN has extensive experience in the design, installation, and operation of a wide range of cryogenic systems and devices, from small cryocooler-cooled units to the large-scale systems of the LHC accelerator and its experiments. Many of these systems integrate superconducting technologies, including magnets, current leads, superconducting links, and RF cavities. This presentation provides an overview of the cryogenic systems operated at CERN and shares the lessons learned throughout the lifecycle of these systems.

Keywords (Index Terms)— Helium cryogenics, large-scale cryogenics, system design, superconductors, superconducting magnets, availability, maintenance

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