

Service des Accélérateurs, de Cryogénie et de Magnétisme

Mercredi

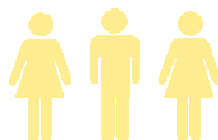
SEMINAIRE SACM

25

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Thermodynamic aspects of superconducting magnet cooling and cryostat development



Cooling of superconducting magnets requires good understanding of thermodynamic processes occurring during their nominal operation and resistive transition. We will discuss the method based on the thermodynamic considerations and enabling the calculation of helium pressure evolution following resistive transition of the accelerator magnets. The approach has been applied at CERN to determine the required design pressure of the LHC cryostats and to size the quench valves.

Thermodynamics provides efficient tool for the cryostat optimization based on the entropy generation minimization. The method has been used during the construction of superfluid helium cryostat built at Wroclaw University of Technology (WUT) and now being under operation at CEA Saclay.

Other examples of cryogenic related research made at WUT like Joule-Thomson coolers fed with gas mixtures development, MLI modelling and BISCO tape sheathes mechanical optimization will be briefly discussed.



NB : La présentation d'une carte d'identité ou d'un passeport est exigée à l'entrée du centre .
Tous les auditeurs extérieurs sont priés de prévenir à l'avance de leur visite : Geneviève
VERON, Tél. : 01 69 08 69 49 (UE : délai de 24h, hors UE : délai de 4 jours) .

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