

Thermomag-07 A CARE-HHH workshop on

Heat Generation and Transfer in Superconducting Magnet
19-21 November 2007
Paris

Introduction to the workshop

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CEA/Saclay - Dapnia/SACM



Goals of Thermomag-07

- Minimizing and evacuating heat for the next generation of superconducting magnets for high intensity particle accelerators
 - o IR magnet for the LHC luminosity upgrade
 - Fast cycled magnets for FAIR
- Reviewing the present knowledge on heat transfer in superconducting magnets
 - Cooling techniques (fluids and regimes)
 - Heat transfer mechanisms
 - Modeling of heat transfer from coils to cooling system
 - Heat transfer experiments
- □ Identify a common set of thermal design criteria



Monday, 19 November 2007

- □ 09:30->14:00 Morning: Introduction and heat generation (J.M. Rifflet)
 - 09:30 Welcome by Antoine DAËL (CEA)
 - 09:40 Introduction to the workshop by Bertrand BAUDOUY (CEA)
 - 09:50 Cryogenics for superconducting magnets by Luigi SERIO (CERN)
 - o 10:30 Thermal design criteria for various cooling schemes by Rob VAN WEELDEREN (CERN)
- □ 11:10 Break
 - 11:30 Beam induced losses by Elena WILDNER (CERN)
 - 12:00 Cable and magnet losses by Luca BOTTURA (CERN)
- □ 12:30 Lunch
- □ 14:00->18:00 Afternoon: Heat transfer (B. Baudouy)
 - 14:00 Mechanisms of heat extraction through cable insulation by Bertrand BAUDOUY (CEA)
 - o 14:30 Cable in conduit and thermal budget at Nuclotron by Alexandre KOVALENKO (JINR, Dubna)
 - 15:00 Nb₃Sn versus NbTi in He II by Davide TOMMASINI (CERN)
 - o 15:30 Heat and mass transfer in superfluid helium through porous media by Hervé ALLAIN (CEA)
- □ 16:00 Break
 - o 16:30 Modeling of quench levels induced by steady state heat disposition by Dariusz BOCIAN (CERN)
 - 17:00 Modeling of cable stability margin for transient perturbations by Pier Paolo GRANIERI
- □ 17:30 Discussion



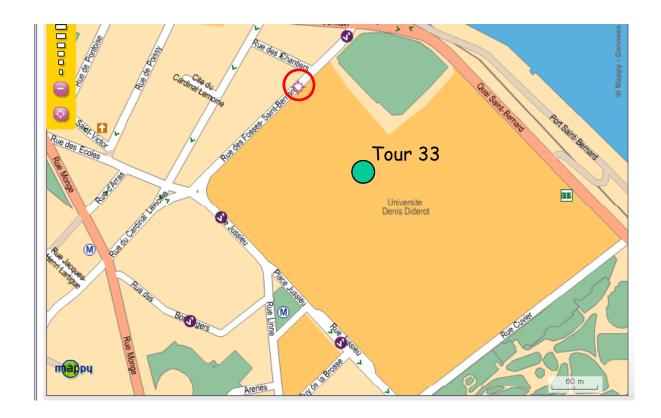
Tuesday, 20 November 2007

- □ 09:00->14:00 Morning: experimental results (R. van Weelderen)
 - 09:00 Transient Thermohydraulics measurement in cooling channels for the Iseult magnet by Philippe BREDY (CEA Saclay)
 - 09:30 Design criteria for cable in conduit conductions in relation with expected disturbances by Jean-Luc DUCHATEAU (CEA)
 - o 10:00 First results of experiments at WUT by Maciej CHOROWSKI (WUT)
 - o 10:30 Experience at CEA (30') Jaroslaw POLINSKI (CEA Saclay)
 - 0 11:00 Break
 - o 11:15 Experience at CERN by David RICHTER (CERN)
 - 11:45 Experience at KEK (30') Nobuhiro KIMURA (KEK)
 - 12:15 Diversity of heat transfer requirements for FAIR magnet applications by Marion KAUSCHE (GSI)
- □ 12:45 Lunch
- □ 14:00 -> 18:30 Afternoon: round table & closeout
 - o 14:00 Round table (1h30') Andrzej SIEMKO (CERN)
 - 0 15:30 Break
 - 16:00 Close out (30') Davide TOMMASINI (CERN)
- □ 19:30 Dinner at L'A.O.C., 14 rue des Fossés St Bernard Paris



Tuesday, 20 November 2007

□ 7.30 pm Dinner @ AOC 14 rue des Fossés Saint Bernard



□ Bus departure in front of AOC retaurant! (21st of November)



Wednesday, 21 November 2007

□ CEA Saclay's Visit

8:00 Bus departure (in front of AOC retaurant)

09:30->12:00 Visit of the SACM @ CEA Saclay
Iseult facility with Pierre Védrine
W7X test facility With Laurent Génini
R&D Lab with Jean Marc Gheller and Bertrand Baudouy

Lunch at Saclay