



Programme of CRYOCOURSE 2013

version 23/08/2013

Sunday, August 25, 2013 (Grenoble and departure to Chichilianne, the Cryocourse location)

15:00	17:00	Welcome and Registration at CNRS-Grenoble	
17:00		Departure from CNRS to Chichilianne by special bus	
19:30	20:30	Dinner in Chichilianne	

Monday, August 26 (Cryocourse location)

9:00	10:00	Welcome - introduction to Cryocourse and Microkelvin	
10:00	11:00	Thermodynamics I	H. Godfrin
11:00	11:30	Pause	
11:30	12:30	Properties of cryogenic fluids	H. Godfrin
12:30	14:00	Lunch	
14:00	15:00	Liquefaction, storage and transfer of Cryofluids	H. Godfrin
15:00	16:00	Vacuum and low temperatures	C. Enss
16:00	16:30	Pause	
16:30	17:30	Thermometry 1 ($T > 1K$)	F. Lévy-Bertrand
17:30	18:30	Heat transfer, Thermal isolation and thermal contact	C. Enss
19:30	20:30	Dinner	

Tuesday, August 27 (Cryocourse location)

9:00	10:00	Statistical Physics	H. Godfrin
10:00	11:00	Cryostat design	S. Triqueneaux
11:00	11:30	Pause	
11:30	12:30	$4He$ and $3He$ cryostats	S. Triqueneaux
12:30	14:00	Lunch	
14:00	15:00	Discussion session	
15:00	16:00	Thermometry 2 ($T < 1K$ -magnetic, noise...)	C. Enss
16:00	16:30	Pause	
16:30	17:30	Disordered solids at low temperatures	C. Enss
17:30	18:30	Properties of solids (thermal expansion, magnetostriction)	H. Godfrin/M. Amara
19:30	20:30	Dinner	

Wednesday, August 28 (Cryocourse location)

9:00	10:00	Electronics and low temperatures	J-L Mocellin/H. Godfrin
10:00	11:00	Properties of solids (heat capacity)	C. Marcenat
11:00	11:30	Pause	
11:30	12:30	Properties of solids (heat capacity)	C. Marcenat
12:30	14:00	Lunch	
14:00	15:00	Properties of solids (thermal conductivity)	J.-P. Brison
15:00	16:00	Superconductivity	J.-P. Brison
16:00	16:30	Pause	
16:30	17:30	Phonons in micro and nanostructures: principles	O. Bourgeois
17:30	18:30	Phonons in micro and nanostructures: methods	O. Bourgeois
19:30	20:30	Dinner	

Thursday, August 29 (Cryocourse location)

9:00	10:00	Quantum Fluids and Solids I	H. Godfrin
10:00	11:00	Quantum Fluids and Solids II	H. Godfrin
11:00	11:30	Pause	
11:30	12:30	Neutron scattering and condensed matter	to be confirmed
12:30	14:00	Lunch	
14:00	15:00	Near-field LT microscopy	C. Winkelmann
15:00	16:00	SQUIDS and SQUID-microscopy	K. Hasselbach
16:00	16:30	Pause	
16:30	17:30	Micro and nano-cooling	H. Courtois
17:30	18:30	Vortices and LT microscopy	J.G. Rodrigo
19:30	20:30	Dinner	

Friday, August 30 (Cryocourse location)

9:00	10:00	Superconducting Engineering 1	P. Tixador
10:00	11:00	Superconducting Engineering 2	P. Tixador
11:00	11:30	Pause	
11:30	12:30	Superconducting Engineering 3	P. Tixador
12:30	14:00	Lunch	
14:00	15:00	Superconducting Magnets - theory and design	G. Donnier-Valentin
15:00	16:00	Discussion session	
16:00	16:30	Pause	
16:30	17:30	Cryogenic space applications	G. Vermeulen
17:30	18:30	Low temperature astrophysical detectors	Ph. Camus
19:30	20:30	Dinner	

Saturday, August 31 (Cryocourse location)

9:00	10:00	Thermodynamics II	A. de Waele
10:00	11:00	Dilution refrigerator Thermodynamics	A. de Waele
11:00	11:30	Pause	
11:30	12:30	Dilution refrigerators - design and operation	H. Godfrin
12:30	14:00	Lunch	
14:00	15:00	Excursion	
15:00	16:00	Excursion	
16:00	16:30	Excursion	
16:30	17:30	Excursion	
17:30	18:30	Excursion	
19:30	20:30	Dinner	

Sunday, September 1 Cryocourse location and travel to Grenoble

9:00	10:00	Cryocoolers	A. de Waele
10:00	11:00	Cryocoolers	A. de Waele
11:00	11:30	Pause	
11:30	12:30	Discussion session	
12:30	14:00	Lunch	
14:00	15:00	Thermometry 3 (MCT, NMR, VWR)	H. Godfrin
15:00	16:00	Ultralow temperatures	H. Godfrin
16:00	16:30	Instructions for Practical courses	
17:00		Departure to Grenoble	
19:30	20:30	Dinner	

Cryocourse 2013 - Practical Courses

Monday, September 2 (Grenoble)

9:00	10:30	Hands-on courses - cryogenic workshop	
10:30	11:00	Pause	
11:00	12:30	Hands-on courses - cryogenic workshop	
12:30	14:00	Lunch	
14:00	15:30	Hands-on courses - cryogenic workshop	
15:30	16:30	Micro/nanofabrication techniques	Th. Fournier
16:30	17:00	Pause	
17:00	18:30	Safety and good practice in handling Cryofluids	C. Gianèse/H. Godfrin
19:30	20:30	Dinner	

Tuesday, September 3rd (Grenoble and departure)

9:00	10:00	Properties of Solids (resistivity)	M. Nuñez Regueiro
10:00	11:00	High pressures at low temperatures	M. Nuñez Regueiro
11:00	11:30	Pause	
11:30	12:30	School summary - Instructions for travel expenses	
12:30	14:00	Lunch - banquet	
14:00		Departure	

Hands-on: experimental courses

3 Groups of about 10 students)

Course A - Superconducting magnets	G. Donnier-Valentin
Course B - Cryogenic workshop/Vacuum and leak detection	G. Donnier-Valentin
Course C - Liquefaction & handling of cryofluids/superfluid 4He	C. Gianèse