

**Version September 14, 2011 programme of CRYOCOURSE 2011**

*Sunday, September 18, 2011 (Grenoble and departure to Chichilianne)*

15:00	17:00	Welcome and Registration at <b>CNRS-Grenoble</b>	
17:15		Departure to Chichilianne from CNRS	
19:30	20:30	Dinner	

*Monday, September 19 (Chichilianne)*

9:00	10:00	Welcome - introduction to Cryocourse - instructions	
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	C. Gianèse
15:00	16:00	Safety and good practice in handling Cryofluids	C. Gianèse
16:00	16:30	Pause	
16:30	17:30	Vacuum and low temperatures	C. Enss
17:30	18:30	Heat transfer, Thermal isolation and thermal contact	C. Enss
19:30	20:30	Dinner	

*Tuesday, September 20 (Chichilianne)*

9:00	10:00	Statistical Physics	H. Godfrin
10:00	11:00	Cryostat design	G. Donnier-Valentin
11:00	11:30	Pause	
11:30	12:30	$4\text{He}$ and $3\text{He}$ cryostats	G. Donnier-Valentin
12:30	14:00	Lunch	
14:00	15:00	Properties of solids (thermal expansion, magnetostriction)	M. Amara
15:00	16:00	Thermometry 1 ( $T > 1\text{K}$ )	F. Lévy
16:00	16:30	Pause	
16:30	17:30	Electronics and low temperatures	J.-L. Mocellin
17:30	18:30	Thermometry 2 ( $T < 1\text{K}$ -magnetic, noise...)	C. Enss
19:30	20:30	Dinner	

*Wednesday, September 21 (Chichilianne)*

9:00	10:00	Disordered solids at low temperatures	C. Enss
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, September 22 (Chichilianne)*

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	Micro and nano-mechanical resonators	E. Collin
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, September 23 (Chichilianne)*

9:00	10:00	Quantum Fluids and Solids	H. Godfrin
10:00	11:00	Superconducting Magnets - theory and design	G. Donnier-Valentin
11:00	11:30	Pause	
11:30	12:30	Discussion session	
12:30	14:00	Lunch	
14:00	15:00	Low temperature astrophysical detectors	Ph. Camus
15:00	16:00	Cryogenic space applications	G. Vermeulen
16:00	16:30	Pause	
16:30	17:30	Cryogenic space applications	G. Vermeulen
17:30	18:30	Cryogenic industry: Air Liquide	Jean-Marc Bernhardt
19:30	20:30	Dinner	

*Saturday, September 24 (Chichilianne)*

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 25 Chichilianne 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	Thermometry 3 (MCT, NMR, VWR)	H. Godfrin
12:30	14:00	Lunch	
14:00	15:00	Ultralow temperatures	H. Godfrin
15:00	16:00	School summary - instructions for Practical courses	
16:00	16:30	Pause	
17:00		<b>Departure to Grenoble</b>	
19:30	20:30	Dinner	

*Monday, September 26 (Grenoble)*

9:00	10:30	hands-on courses A to D in parallel	
10:30	11:00	Pause	
11:00	12:30	hands-on courses A to D in parallel	
12:30	14:00	Lunch	
14:00	15:00	Micro/nanofabrication techniques	Th. Fournier
15:00	16:00	Superconducting Engineering 1	P. Tixador
16:00	16:30	Pause	
16:30	17:30	Superconducting Engineering 2	P. Tixador
17:30	18:30	Superconducting Engineering 3	P. Tixador
19:30	20:30	Dinner	

*Tuesday, September 27 (Grenoble and departure)*

9:00	10:30	hands-on courses A to D in parallel	
10:30	11:00	Pause	
11:00	12:30	hands-on courses A to D in parallel	
12:30	14:00	Lunch	
14:00		<b>Departure</b>	

**Hands-on: experimental courses**

1,5 hours courses (4 groups of 10 students)

Course A - Superconducting magnets	G. Donnier-Valentin
Course B - Cryogenic workshop/Vacuum and leak detection	G. Donnier-Valentin
Course C - Low-noise electronics workshop	O. Exshaw/J-L Mocellin
Course D - Liquefaction & handling of cryofluids/superfluid 4He	C. Gianèse