

# Joint Universities Accelerator School

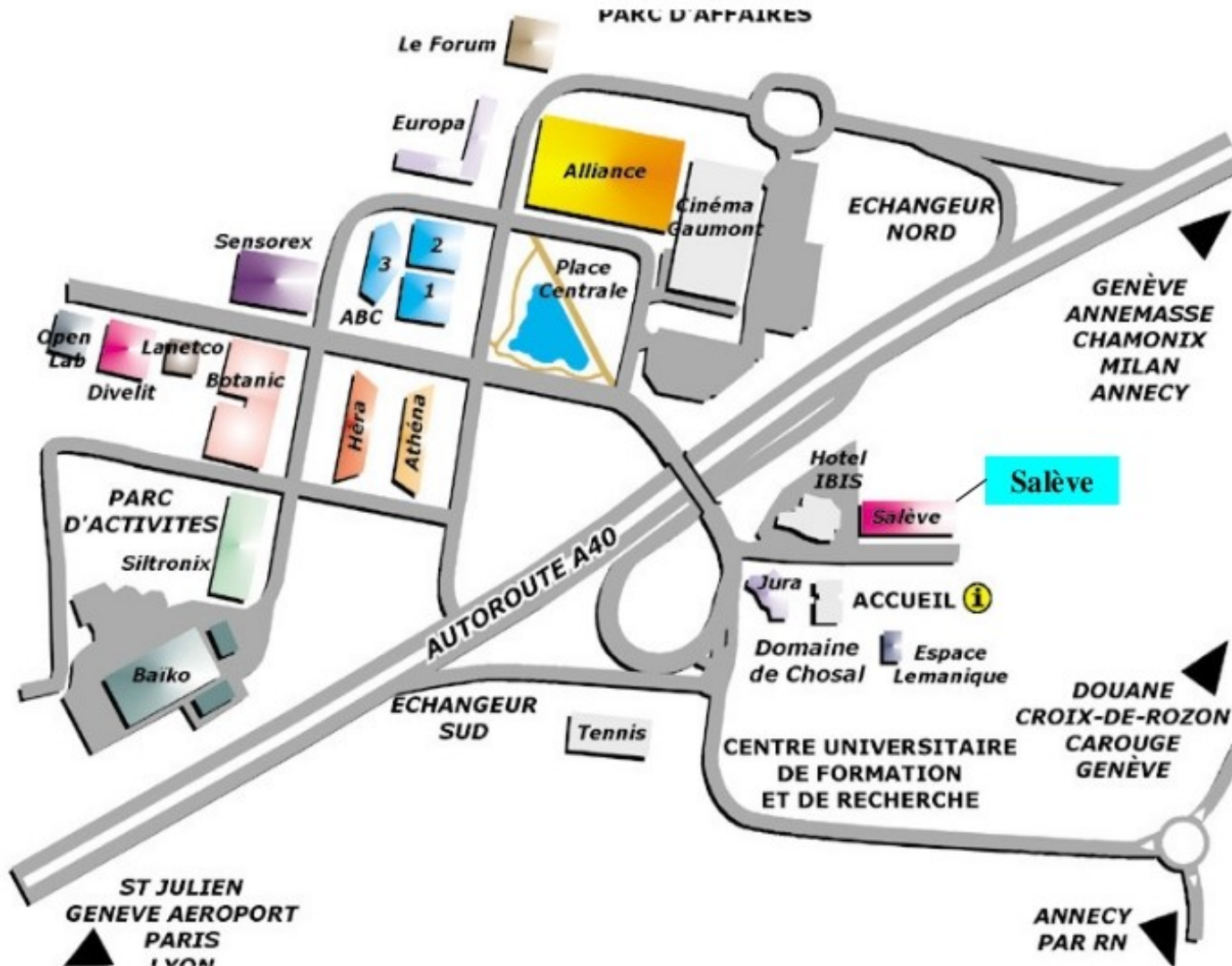
Louis Rinolfi



TIARA

23<sup>rd</sup> February 2011

# Map of the JUAS area





# JOINT UNIVERSITIES ACCELERATOR SCHOOL



## TWO COURSES ON PARTICLE ACCELERATORS



- PHYSICS
- TECHNOLOGIES AND APPLICATIONS

Intensive programme for graduate students  
Credits Available from the European partner Universities (ECTS)  
Modular Courses for Professionals

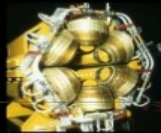
Scholarships available for Students

**3 January – 11 March**

*Archamps (France), 7 km from Geneva (Switzerland)*

# JUAS 2011

PHOTOS: CERN COPYRIGHT



Organised by  
The European Scientific Institute  
with the support of 12 major European Universities

Universitat Politècnica de Catalunya  
Universitat Autònoma de Barcelona  
Technische Universität Darmstadt  
Université Joseph Fourier Grenoble  
Institut National Polytechnique de Grenoble  
Universität Karlsruhe (TH)  
Università degli Studi di Napoli « Federico II »  
Università degli Studi di Roma « La Sapienza »  
Technische Universität Berlin  
Università degli Studi di Genova  
Universitat de València  
Ruprecht-Karls-Universität Heidelberg

### Local Information

Information:  
ESI/JUAS  
Centre Universitaire de Formation et de Recherche  
Site d'Archamps  
F-74160 Archamps  
Phone: +33 (0)4 50 31 50 10  
[juas@esi.cur-archamps.fr](mailto:juas@esi.cur-archamps.fr)

<http://juas.in2p3.fr>



Sponsored by  
CEA, CERN, DESY, ESRF, GSI, IN2P3/CNRS, PSI, SOLEIL,  
BERGOZ Instrumentation, Conseil Général de Haute-Savoie,  
Helmholtz Zentrum Berlin, HIC for FAIR

# JUAS poster for 2011

# Structure of Archamps Technopole

## European Scientific Institute

President Manfred Buhler-Broglin

ESI Administrator : Tamara Barberan

ESI Assistant : Filiz Demolis

2 schools

### JUAS

2 courses

Accelerator Physics  
Accelerator Technology

January – March

Director: Louis Rinolfi  
Accelerator Physicist  
CERN

### ESMP

Medical Physics

November

Director: Yves Lemoigne  
Physicist  
CEA / IRFU

# JUAS Advisory Committee 2011

12 European Universities	Member of Advisory Committee	Since
Université Joseph Fourier Grenoble	François Montanet	1994
Technische Universität Darmstadt	Joachim Enders	1994
Universität Karlsruhe	Anke Suzanne Müller	1994
Universitat Politècnica de Catalunya	Antoni Mendez	1994
Universitat Autònoma de Barcelona	Francisco Calviño	1994
Institut Polytechnique de Grenoble	Elsa Merle-Lucotte	1994
Università degli studi di Napoli "Federico II"	Vittorio Vaccaro	1994
Università degli studi di Roma "La Sapienza"	Luigi Palumbo	1994
Università degli studi di Genova	Marco Bozzo	2002
Technische Universität Berlin	Heino Henke	2002
Universitat de Valencia	Angeles Faus-Golfe	2002
Universität Heidelberg	Carsten Welsch	2007

# JUAS Program Committee 2011

Institutes	Member of Program Committee
CERN - CAS	Daniel Brandt / Roger Bailey
DESY	Bernhard Holzer
ESI President	Manfred Buhler-Broglin
ESRF	Jean-Luc Revol
JUAS Director	Louis Rinolfi
Oxford University	Chris Prior
PSI and EPFL	Lenny Rivkin

# Professors and assistants in 2011 – Course 1

<b>Professors</b>	<b>Assistants</b>	<b>Lecture</b>	<b>Home</b>
P. Bryant	J. Payet	Introduction to Accelerators	England
V. Vaccaro		Relativity & Electromagnetism	University Napoli
F. Méot		Particle optics	BNL
B. Holzer	R. Alemany / G. Sterbini	Transverse Beam Dynamics	CERN
E. Métral		Longitudinal Beam Dynamics	CERN
A. Lombardi	J.B. Lallement	Linacs	CERN
Y. Papaphilippou		Linear imperfections	CERN
M. Migliorati		Instabilities	University Roma
K. Wille		Synchrotron radiations	University Dortmund
F. Chautard		Cyclotrons	GANIL
L. Farvacque		Injection / Extraction	ESRF

# Professors and assistants in 2011 – Course 2

<b>Professors</b>	<b>Assistant</b>	<b>Lecture</b>	<b>Home</b>
L. Rinolfi		Introduction to Accelerators	CERN
F. Caspers	B. Salvant / S. Federmann	RF engineering	CERN
J.M. Jimenez	V. Baglin, M. Taborelli	Vacuum systems	CERN
S. Russenschuck		Design accelerator magnets	CERN
I. Sakai		Conventional magnets	University Fukui
M. Wilson	A. Ballarino / C. Giloux	SC magnets	Oxford Instrument
W. Weingarten		SC RF cavities	CERN
P. Forck		Beam instrumentation	GSI
T. Thuillier		Particle sources	LPSC
E. Zimoch		Accelerator command/control	PSI
S. Bousson		High current proton linacs	IN2P3
P. Berkvens		Radiation safety	ESRF
G. Beyer		Production of medical isotopes	HCUGE
R. Miralbell		Therapeutic applications	HCUGE
W. Mondelaers		Electron accelerators	University Gent
Y. Jongen		Accelerators for industrial	IBA



JUAS 2011 week 2	Monday 10 Jan.	Tuesday 11 Jan.	Wednesday 12 Jan.	Thursday 13 Jan.	Friday 14 Jan.	JUAS 2011 week 2
9:00	Transverse	Longitudinal	Longitudinal	Longitudinal	Longitudinal	9:00
	Dynamics	Dynamics	Dynamics	Dynamics	Dynamics	
9:50	<i>B. Holzer</i>	<i>E. Métral</i>	<i>E. Métral</i>	<i>E. Métral</i>	<i>E. Métral</i>	9:50
	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break	
10:15	Transverse Dynamics	Transverse Dynamics	Longitudinal	Longitudinal Dynamics	Longitudinal Dynamics	10:15
	Dynamics	Guided studies	Dynamics	Guided studies	Tutorial	
11:05	<i>B. Holzer</i>	<i>B. Holzer &amp; R. Alemany</i>	<i>E. Métral</i>	<i>E. Métral</i>	<i>E. Métral</i>	11:05
11:10	Longitudinal	Transverse Dynamics	Transverse	Longitudinal Dynamics	Longitudinal	11:10
	Dynamics	Tutorial	Dynamics	Guided studies	Dynamics	
12:00	<i>E. Métral</i>	<i>B. Holzer &amp; R. Alemany</i>	<i>B. Holzer</i>	<i>E. Métral</i>	<i>E. Métral</i>	12:00
	LUNCH BOX	LUNCH	LUNCH	LUNCH	LUNCH	
12:10:00	Departure					12:10:00
		Transverse	MADX	MADX	MADX	
15:00	VISIT OF	Dynamics	tutorial	tutorial	tutorial	15:00
		<i>B. Holzer</i>				
15:50	ESRF	Transverse Dynamics	Transverse Dynamics	Transverse Dynamics	Longitudinal Dynamics	15:50
		Guided studies	Guided studies	Tutorial	Guided studies	
16:10	Return	<i>B. Holzer &amp; R. Alemany</i>	<i>B. Holzer &amp; R. Alemany</i>	<i>B. Holzer &amp; R. Alemany</i>	<i>E. Métral</i>	16:10
		Coffee break	Coffee break	Coffee break	Coffee break	
17:00	18:00:00	INTRODUCTION TO MADX	Transverse Dynamics	Transverse Dynamics	Longitudinal Dynamics	17:00
		<i>G. Sterbini</i>	Guided studies	Dynamics	Guided studies	
		<i>B. Holzer &amp; R. Alemany</i>	<i>B. Holzer</i>	<i>E. Métral</i>		

**Course 1**  
**Accelerator Physics is**  
**composed of 5 weeks**

**Course 2**  
**Accelerator Technology**  
**is composed of 5 weeks**

← **Example**  
**Week 2 in the**  
**2011 Time Table**

# Course nomenclature at JUAS

There is an “official” document available on web as JUAS and CERN Schools nomenclature.

Students are encouraged to keep that document, use it, discuss it with the lecturers.

*CAS*

THE CERN ACCELERATOR SCHOOL

*JUAS*

THE JOINT UNIVERSITIES  
ACCELERATOR SCHOOL

## **Nomenclature & Formulæ**

This document has been produced by the Advisory and Programme Committee of the Joint Universities Accelerator School (JUAS), under the coordination of the School Director.

It has been agreed between the two Schools, CAS and JUAS, that it should serve as a guideline for the lectures presented both at the JUAS and CAS courses.

# European Credit Transfer System (ECTS)

Students passing the exam

either for the Accelerator Physics course alone  
or Accelerator Technology and Applications course alone

or both

could receive up to **20 ECTS**  
recognized by the 12 European Universities

# Computers and Books

## Computer room

40 Computers are available during the 10 weeks of the course.

## JUAS Web site :

A new Web site has been implemented this year: <http://cern.ch/juas>

## Books :

Many accelerator publications and books, for lawn, are available, on the shelves in JUAS. They can be borrowed and kept for the duration of the school.

# Every day life at JUAS

## Home work

There is room for home work after lecture time. Students are encouraged to make small working teams, work together – just like in real “Accelerator Physicist's Life”

## Coffee breaks:

Twice a day, morning and afternoon, the right place for discussions of all sort !

A famous accelerator world concept : 50% of the research is performed during coffee breaks.

The right place for discussing with lecturers and looking for a training period in one laboratory.

## Appreciation sheets :

JUAS asks appreciations on the lectures/lecturers.



# Job opportunities from JUAS

Being at JUAS is **the** opportunity to find a position for an:

➡ Internship or traineeship in European Laboratories,

➡ Summer job,

➡ PhD grant,

or other job opportunity.

# Accelerator Conference prize for JUAS

Each year JUAS is allotted a grant by the

**International Particle Accelerator Conference “IPAC”**

**The requirements to attend IPAC Conferences are the following:**

1. To be proposed by JUAS Director to IPAC Conferences Coordinator
2. To present work at the conference, abstract/poster and contribution to proceedings
3. To serve as required, scientific secretary, etc. as for other supported students



Thank you for your attention

