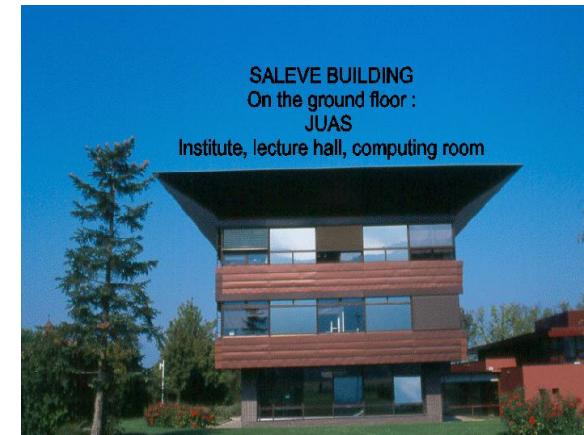


# WELCOME TO JUAS 2012

Louis Rinolfi



Joint Universities Accelerator School





# JUAS 2012

9 January – 16 March

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

## TWO COURSES ON PARTICLE ACCELERATORS :

### 1. SCIENCE & PHYSICS

(January 9<sup>th</sup> to February 10<sup>th</sup>)

### 2. TECHNOLOGY & APPLICATIONS

(February 13<sup>th</sup> to March 16<sup>th</sup>)

Intensive programme for graduate students

Credits Available from the 13 European Universities (ECTS)

Modular Courses for Professionals

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)

[www.cern.ch/juas](http://www.cern.ch/juas)



Organised by

The European Scientific Institute  
with the support of 13 major  
European Universities

Universitat Politècnica de Catalunya

Universitat Autònoma de Barcelona

Technische Universität Darmstadt

Université Joseph Fourier Grenoble

Institut National Polytechnique de Grenoble

Karlsruhe Institute of Technology

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

University of Liverpool



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# Structure of Archamps Technopole

## ESI: European Scientific Institute

President Manfred Buhler-Broglin

ESI Administrator : Sebastien Rinolfi

ESI Assistant : Filiz Demolis

2 schools

### JUAS

2 courses

Accelerator Physics

Accelerator Technology

January – March

Director: Louis Rinolfi

Accelerator Physicist

CERN

### ESMP

1 course

Medical Physics

November

Director: Yves Lemoigne

Physicist

CEA / IRFU

# 13 European Universities - JUAS in 2012

Universities	Member of Advisory Committee	Since
Université Joseph Fourier Grenoble	Jean-Marie De Conto	1994
Technische Universität Darmstadt	Joachim Enders	1994
Karlsruher Institut für Technologie	Anke Susanne 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	Andreas Schon	2007
University of Liverpool	Carsten Welsch	2011

# Institutes, Laboratories and Industrial sponsoring JUAS

Laboratories (alphabetic order)
Bergoz Instrumentation
CEA
CERN
CNRS / IN2P3
CPAN
DESY
ESRF
GSI
HIC / FAIR
HZB
PSI
SOLEIL

# Professors and assistants in 2012 – Course 1

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

# Professors and assistants in 2012 – Course 2

<b>Professors</b>	<b>Lecture</b>	<b>Home</b>
L. Rinolfi	Introduction to Accelerators	CERN
F. Caspers	RF engineering	CERN
P. Chiggiato	Vacuum systems	CERN
S. Russenschuck	Design accelerator magnets	CERN
T. Zickler	Normal conducting magnets	CERN
M. Wilson	Super Conducting magnets	Oxford Instrument
F. Caspers / W. Weingarten	Super Conducting RF cavities	CERN
P. Forck	Beam instrumentation	GSI / Germany
T. Thuillier	Particle sources	LPSC / Grenoble
E. Zimoch	Accelerator command/control	PSI / Villigen / Switzerland
S. Bousson	High current proton linacs	IN2P3 / IPNO / Orsay
P. Berkvens	Radiation safety	ESRF / Grenoble
G. Beyer	Production of medical isotopes	HCU Genève
R. Miralbell	Therapeutic applications	HCU Genève
W. Mondelaers	Electron accelerators	University Gent / Belgium
P. Verbruggen	Accelerators for industrial	IBA / Belgium



# WEEK 1

JUAS 2012	Monday Jan 9th	Tuesday Jan 10th	Wednesday Jan 11th	Thursday Jan 12th	Friday Jan 13th	
09:00	<b>Registration</b> at Juas Office	<b>Relativity</b> lecture <i>H. Henke</i>	<b>Electro-magnetism</b> lecture <i>H. Henke</i>	<b>Particle optics</b> lecture <i>F. Méot</i>	<b>Intro. to Accelerators</b> lecture <i>Ph. Bryant</i>	09:00
10:00	<b>Presentation of JUAS 2012</b> <i>L. Rinolfi</i>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	10:00
10:15		<b>Relativity</b> tutorial <i>H. Henke</i>	<b>Electro-magnetism</b> tutorial <i>H. Henke</i>	<b>Particle optics</b> lecture <i>F. Méot</i>	<b>Intro. to Accelerators</b> tutorial <i>Ph. Bryant</i>	10:15
11:15	<b>Presentation of students 2012</b> <i>L. Rinolfi</i>	<b>Electro-magnetism</b> lecture <i>H. Henke</i>	<b>Electro-magnetism</b> lecture <i>H. Henke</i>	<b>Particle optics</b> tutorial <i>F. Méot</i>	<b>Intro. to Accelerators</b> tutorial <i>Ph. Bryant</i>	11:15
12:15	<b>WELCOME</b> <b>COCKTAIL</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>	12:15
14:00		<b>Intro. to Accelerators</b> lecture <i>Ph. Bryant</i>	<b>Intro. to Accelerators</b> lecture <i>Ph. Bryant</i>	<b>Particle optics</b> lecture <i>F. Méot</i>	<b>Bus leaves at 13h15 at JUAS</b>  <b>VISIT</b> <b>AT</b> <b>CERN</b>  <b>Return scheduled at 18h30</b>	14:00
15:00	<b>Relativity</b> lecture <i>H. Henke</i>	<b>Intro. to Accelerators</b> lecture <i>Ph. Bryant</i>	<b>Particle optics</b> tutorial <i>F. Méot</i>	15:00		
16:00	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>		16:00
16:15	<b>Relativity</b> lecture <i>H. Henke</i>	<b>Intro. to Accelerators</b> lecture <i>Ph. Bryant</i>	<b>Intro. to Accelerators</b> lecture <i>Ph. Bryant</i>	<b>Particle optics</b> lecture <i>F. Méot</i>	16:15	
17:15						17:15



# WEEK 3

Chamonix on Saturday

JUAS 2012

	<b>Monday Jan 23rd</b>	<b>Tuesday Jan 24th</b>	<b>Wednesday Jan 25th</b>	<b>Thursday Jan 26th</b>	<b>Friday Jan 27th</b>
<b>09:00</b>	<b>Transverse Dynamics</b> tutorial <i>R. Alemany</i>	<b>Linear imperfections</b> lecture <i>Y. Papaphilippou</i>	<b>Linear imperfections</b> lecture <i>Y. Papaphilippou</i>	<b>Space charge</b> lecture <i>M. Migliorati</i>	<b>Instabilities</b> lecture <i>M. Migliorati</i>
<b>10:00</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>
<b>10:15</b>	<b>Transverse Dynamics</b> tutorial <i>R. Alemany</i>	<b>Linear imperfections</b> lecture <i>Y. Papaphilippou</i>	<b>Non-linear effects</b> lecture <i>Y. Papaphilippou</i>	<b>Space charge</b> lecture <i>M. Migliorati</i>	<b>Instabilities</b> lecture <i>M. Migliorati</i>
<b>11:15</b>	<b>Linacs</b> lecture <i>A. Lombardi</i>	<b>Linear imperfections</b> tutorial <i>Y. Papaphilippou</i>	<b>Non-linear effects</b> lecture <i>Y. Papaphilippou</i>	<b>Linacs</b> tutorial <i>A. Lombardi / JB Lallement</i>	<b>Instabilities</b> tutorial <i>M. Migliorati</i>
<b>12:15</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>
<b>13:00</b>	<b>Exercises in computer room</b>	<b>Exercises in computer room</b>	<b>Exercises in computer room</b>	<b>Exercises in computer room</b>	<b>Exercises in computer room</b>
<b>14:00</b>	<b>Linacs</b> lecture <i>A. Lombardi</i>	<b>Injection / extraction</b> lecture <i>T. Perron</i>	<b>Linacs</b> lecture <i>A. Lombardi</i>	<b>Space charge</b> tutorial <i>M. Migliorati</i>	<b>Instabilities</b> lecture <i>M. Migliorati</i>
<b>15:00</b>	<b>Linacs</b> lecture <i>A. Lombardi</i>	<b>Injection / extraction</b> lecture <i>T. Perron</i>	<b>Linacs</b> tutorial <i>A. Lombardi / JB Lallement</i>	<b>Space charge</b> lecture <i>M. Migliorati</i>	<b>Non-linear effects</b> tutorial <i>Y. Papaphilippou</i>
<b>16:00</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>
<b>16:15</b>	<b>Linacs</b> tutorial <i>A. Lombardi / JB Lallement</i>	<b>Linear imperfections</b> lecture <i>Y. Papaphilippou</i>	<b>Non-linear effects</b> lecture <i>Y. Papaphilippou</i>	<b>Exercises in computer room</b>	<b>Non-linear effects</b> tutorial <i>Y. Papaphilippou</i>
<b>17:15</b>					

**09:00**

**10:00**

**10:15**

**11:15**

**12:15**

**13:00**

**14:00**

**15:00**

**16:00**

**16:15**

**17:15**

# WEEK 4

JUAS 2012	Monday Jan 30th	Tuesday Jan 31st	Wednesday Feb 1st	Thursday Feb 2nd	Friday Feb 3rd	
09:00	<b>Synchrotron Radiation</b> lecture <i>K. Wille</i>	<b>Machine Design</b> tutorial <i>Ph. Bryant</i>	<b>Synchrotron Radiation</b> lecture <i>K. Wille</i>	<b>Synchrotron Radiation</b> lecture <i>K. Wille</i>	<b>Synchrotron Radiation</b> lecture <i>K. Wille</i>	09:00
10:00	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	10:00
10:15	<b>Synchrotron Radiation</b> lecture <i>K. Wille</i>	<b>Machine Design</b> tutorial <i>Ph. Bryant</i>	<b>Synchrotron Radiation</b> tutorial <i>K. Wille</i>	<b>Cyclotrons</b> lecture <i>F. Chautard</i>	<b>Synchrotron Radiation</b> lecture <i>K. Wille</i>	10:15
11:15	<b>Synchrotron Radiation</b> tutorial <i>K. Wille</i>	<b>Machine Design</b> tutorial <i>Ph. Bryant</i>	<b>Cyclotrons</b> lecture <i>F. Chautard</i>	<b>Cyclotrons</b> tutorial <i>F. Chautard</i>	<b>Synchrotron Radiation</b> tutorial <i>K. Wille</i>	11:15
12:15	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>	12:15
13:00	<b>Exercises in computer room</b>	<b>Exercises in computer room</b>	<b>Exercises in computer room</b>	<b>Exercises in computer room</b>	<b>Exercises in computer room</b>	
14:00	<b>Synchrotron Radiation</b> lecture <i>K. Wille</i>	<b>Machine Design</b> tutorial <i>K. Wille</i>	<b>Cyclotrons</b> lecture <i>F. Chautard</i>	<b>Seminar</b> <b>Linear colliders</b> <i>L. Rinolfi</i>	<b>Conclusion to mini-workshop</b> <i>Ph. Bryant</i>	14:00
15:00	<b>Synchrotron Radiation</b> tutorial <i>K. Wille</i>	<b>Machine Design</b> tutorial <i>K. Wille</i>	<b>Cyclotrons</b> tutorial <i>F. Chautard</i>	<b>Synchrotron Radiation</b> lecture <i>K. Wille</i>	<b>Conclusion to mini-workshop</b> <i>Ph. Bryant</i>	15:00
16:00	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	16:00
16:15	<b>Exercises in computer room</b>	<b>Machine Design</b> tutorial <i>K. Wille</i>	<b>Cyclotrons</b> lecture <i>F. Chautard</i>	<b>Seminar</b> <b>Plasma &amp; Laser</b> <i>B. Cros</i>	<b>Conclusion to mini-workshop</b> <i>Ph. Bryant</i>	16:15
17:15						17:15



# WEEK 5

JUAS 2012	Monday Feb 6th	Tuesday Feb 7th	Wednesday Feb 8th	Thursday Feb 9th	Friday Feb 10th
09:00					09:00
		<b>EXAMINATION</b> Transverse beam dynamics <i>Written session</i>	<b>EXAMINATION</b> Longitudinal beam dynamics <i>Written session</i>	<b>EXAMINATION</b> Synchrotron radiation <i>Written session</i>	
10:00					10:00
10:15		<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	10:15
			<b>EXAMINATION</b> Subject to be defined <i>Written session</i>	<b>EXAMINATION</b> Subject to be defined <i>Written session</i>	
11:15					11:15
12:15					12:15
				<b>BUFFET</b> <b>END OF 1ST</b> <b>JUAS SESSION</b>	
13:00					
14:00					14:00
15:00					15:00
16:00					16:00
16:15					16:15
17:15					17:15

# WEEK 6

JUAS 2012	Monday Feb 13th	Tuesday Feb 14th	Wednesday Feb 15th	Thursday Feb 16th	Friday Feb 17th	
09:00	<b>Registration at Juas Office</b>	RF Engineering lecture <i>F. Caspers</i>	Vacuum systems lecture <i>P. Chiggiato</i>	RF Engineering lecture <i>F. Caspers</i>	RF Engineering tutorial <i>F. Caspers</i>	09:00
10:00 10:15	Presentation of JUAS 2012  <i>L. Rinolfi</i>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	10:00 10:15
		RF Engineering tutorial <i>F. Caspers</i>	Vacuum systems lecture <i>P. Chiggiato</i>	Vacuum systems lecture <i>P. Chiggiato</i>	RF Engineering tutorial <i>F. Caspers</i>	
11:15	Presentation of students 2012  <i>L. Rinolfi</i>	RF Engineering lecture <i>F. Caspers</i>	Vacuum systems tutorial <i>P. Chiggiato / R. Kersevan</i>	Vacuum systems tutorial <i>P. Chiggiato / R. Kersevan</i>	<b>Bus leaves at 11h30 at JUAS</b>  <i>(lunch at CERN)</i>  VISIT  AT  CERN	11:15
12:15	<b>WELCOME</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>		12:15
13:00	<b>COCKTAIL</b>	Exercises in computer room	Exercises in computer room	Exercises in computer room		13:00
14:00	Intro. to accelerators lecture  <i>L. Rinolfi</i>	RF Engineering lecture <i>F. Caspers</i>	Vacuum systems lecture <i>P. Chiggiato</i>	RF Engineering lecture <i>F. Caspers</i>		14:00
15:00	RF Engineering lecture  <i>F. Caspers</i>	RF Engineering tutorial <i>F. Caspers</i>	Vacuum systems tutorial <i>P. Chiggiato / R. Kersevan</i>	RF Engineering tutorial <i>F. Caspers</i>	15:00	
16:00 16:15	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Return scheduled at 18h30</b>	16:00 16:15
17:15	RF Engineering lecture  <i>F. Caspers</i>	RF Engineering lecture <i>F. Caspers</i>	<b>Seminar Hadron therapy</b> <i>A. Degiovanni</i>	RF Engineering lecture  <i>F. Caspers</i>		17:15

# WEEK 7

JUAS 2012		Monday Feb 20th	Tuesday Feb 21st	Wednesday Feb 22nd	Thursday Feb 23rd	Friday Feb 24th	
09:00		<b>Magnets design</b> lecture <i>S. Russenschuck</i>	<b>Magnets design</b> lecture <i>S. Russenschuck</i>	<b>Superconducting</b> <b>magnets</b> lecture <i>M. Wilson</i>	<b>NC MAGNETS</b>  <b>COMPUTER WORK</b>	<b>Bus leaves at 8h30 at JUAS</b>          <b>PRACTICAL WORKS AT CERN</b>      <b>1) RF 2) VACUUM 3) MAGNETS 4) CRYOGENY</b>      <b>Return scheduled at 18h30</b>	09:00
10:00		<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>		10:00
10:15		<b>Magnets design</b> lecture <i>S. Russenschuck</i>	<b>Magnets design</b> lecture <i>S. Russenschuck</i>	<b>Superconducting</b> <b>magnets</b> tutorial <i>M. Wilson</i>	<b>NC MAGNETS</b>  <b>COMPUTER WORK</b>		10:15
11:15		<b>Magnets design</b> lecture <i>S. Russenschuck</i>	<b>Magnets design</b> lecture <i>S. Russenschuck</i>	<b>Superconducting</b> <b>magnets</b> lecture <i>M. Wilson</i>			11:15
12:15		<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>	<b>LUNCH</b>		12:15
14:00		<b>Normal Conducting</b> <b>magnets</b> lecture <i>T. Zickler</i>	<b>Superconducting</b> <b>magnets</b> lecture <i>M. Wilson</i>	<b>Superconducting</b> <b>magnets</b> lecture <i>M. Wilson</i>	<b>SC MAGNETS</b>  <b>COMPUTER WORK</b>		14:00
15:00		<b>Normal Conducting</b> <b>magnets</b> lecture <i>T. Zickler</i>	<b>Superconducting</b> <b>magnets</b> lecture <i>M. Wilson</i>	<b>Mini workshop magnets</b>  <i>S. Russenschuck</i>	<i>S. Russenschuck</i>		15:00
16:00		<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>		16:00
16:15		<b>Normal Conducting</b> <b>magnets</b> lecture <i>T. Zickler</i>	<b>Superconducting</b> <b>magnets</b> tutorial <i>M. Wilson</i>	<b>Mini workshop magnets</b>  <i>S. Russenschuck</i>	<b>Seminar</b> <b>Effects of radiation</b> <b>in particle accelerators</b> <i>R. Losito</i>		16:15
17:15							17:15

# WEEK 8

Chamonix on Sunday

JUAS 2012

**Monday  
Feb 27th**

**Tuesday  
Feb 28th**

**Wednesday  
Feb 29th**

**Thursday  
Mar 1st**

**Friday  
Mar 2nd**

09:00

09:00

**Superconducting RF Cavities**  
lecture  
*F. Caspers*

**Superconducting RF Cavities**  
tutorial  
*F. Caspers*

**Beam instrumentation**  
lecture  
*P. Forck*

**Beam instrumentation**  
lecture  
*P. Forck*

VISIT

10:00

10:00

**Coffee Break**

**Coffee Break**

**Coffee Break**

**Coffee Break**

10:15

**Superconducting RF Cavities**  
lecture  
*F. Caspers*

**Beam instrumentation**  
lecture  
*P. Forck*

**Beam instrumentation**  
lecture  
*P. Forck*

*Bus leaves at 10h15 at  
JUAS*

PSI

11:15

11:15

**Superconducting RF Cavities**  
lecture  
*F. Caspers*

**Beam instrumentation**  
lecture  
*P. Forck*

**Beam instrumentation**  
lecture  
*P. Forck*

TRAVEL TO

VILLIGEN

12:15

12:15

**LUNCH**

**LUNCH**

**LUNCH**

14:00

14:00

**Exercise in computer room**

**Superconducting RF Cavities**  
tutorial  
*F. Caspers*

**Beam instrumentation**  
tutorial  
*P. Forck*

**Beam instrumentation**  
tutorial  
*P. Forck*

VISIT

VILLIGEN

15:00

15:00

**Superconducting RF Cavities**  
tutorial  
*F. Caspers*

**Beam instrumentation**  
tutorial  
*P. Forck*

**Beam instrumentation**  
tutorial  
*P. Forck*

PSI

16:00

16:00

**Coffee Break**

**Coffee Break**

**Coffee Break**

*Return scheduled at  
21h00*

16:15

16:15

**Superconducting RF Cavities**  
lecture  
*F. Caspers*

**Beam instrumentation**  
lecture  
*P. Forck*

**Beam instrumentation**  
lecture  
*P. Forck*

*Dinner at PSI*

17:15

17:15



# WEEK 9

JUAS 2012	Monday Mar 5th	Tuesday Mar 6th	Wednesday Mar 7th	Thursday Mar 8th	Friday Mar 9th	
09:00	Particle Sources lecture <i>T. Thuillier</i>	Low Energy Electron Accelerators lecture <i>W. Mondelaers</i>	<b>Bus leaves at 8h30</b>  VISIT  AND  EXPERIMENTAL  WORK  AT  BERGOZ  INSTRUMENTATION  <b>Return scheduled at 18h30</b>	High Current Proton Linacs lecture <i>S. Bousson</i>	Radiation & Safety lecture <i>P. Berkvens</i>	09:00
10:00 10:15	Coffee Break	Coffee Break		Coffee Break	Coffee Break	10:00 10:15
11:15	Particle Sources lecture <i>T. Thuillier</i>	Low Energy Electron Accelerators lecture <i>W. Mondelaers</i>		High Current Proton Linacs lecture <i>S. Bousson</i>	Radiation & Safety lecture <i>P. Berkvens</i>	11:15
12:15	LUNCH	LUNCH		High Current Proton Linacs lecture <i>S. Bousson</i>	Radiation & Safety lecture <i>P. Berkvens</i>	12:15
14:00	Particle Sources tutorial <i>T. Thuillier</i>	Acc. for indust. & medical applications lecture <i>P. Verbruggen</i>		LUNCH	LUNCH	14:00
15:00	Accelerator Control lecture <i>E. Zimoch</i>	Acc. for indust. & medical applications lecture <i>P. Verbruggen</i>		Production of medical isotopes lecture <i>G. Beyer</i>	<b>Bus leaves at 13h30</b>  Therapeutic  Applications at  Geneva Hospital	15:00
16:00 16:15	Coffee Break	Coffee Break		Coffee Break	<i>R. Miralbell</i>	16:00 16:15
17:15	Accelerator Control lecture <i>E. Zimoch</i>	Acc. for indust. & medical applications lecture <i>P. Verbruggen</i>		Production of medical isotopes lecture <i>G. Beyer</i>	<b>Return scheduled at 18h30</b>	17:15

# WEEK 10

JUAS 2012

**Monday**  
Mar 12th

**Tuesday**  
Mar 13th

**Wednesday**  
Mar 14th

**Thursday**  
Mar 15th

**Friday**  
Mar 16th

09:00

09:00

**EXAMINATION**

**EXAMINATION**

**EXAMINATION**

**RF**

**Magnets**

**Beam Instrumentation**

10:00

10:00

10:15

10:15

*Written session*

*Written session*

*Written session*

**Coffee Break**

**Coffee Break**

**Coffee Break**

11:15

11:15

**EXAMINATION**  
Subject to be defined

**EXAMINATION**  
Subject to be defined

12:15

12:15

*written session*

*written session*

13:00

**BUFFET**  
**END OF 2nd**  
**JUAS SESSION**

14:00

14:00

15:00

15:00

16:00

16:00

16:15

16:15

17:15

17:15

# Course nomenclature at JUAS

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

We encourage you to keep that document with you, use it, discuss it with the lecturers whenever necessary (should be often !)

*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.

# Practical information

## Home work

There is room within JUAS area for home work after lecture time, working in group as well. We encourage you to make small working teams, work together – just like in real “Accelerator Physicist's Life”

## Internet

Computers are available for that in JUAS office, at any time for e-mailing and other web surfing. Wi-Fi is available at Residential, Logitop and La Colombiere.

## Computer room

e-mailing and web surfing are not permitted in the Computer Room.

In principle, each participant will use a single computer available in the room. However, in case, one computer is not working, please arrange a team of 2 persons for a single computer.



# Practical information

## Books :

We have many accelerator publications and books, for loan, on the shelves in JUAS area. They can be borrowed and kept for the duration of the school. Please ask Filiz before borrowing, so that we know where books are.

## JUAS web site :

The new Web site maintained updated: [www.cern.ch/juas](http://www.cern.ch/juas)

- The Time Table is kept updated each time a change occurs for a lecture or a visit.
- The proposals for Traineeships, PhD, .... , submitted by laboratories are displayed

# Every day life at JUAS

## Coffee breaks:

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

An 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 an accelerator Laboratory

## Lunch :

The Alliance building has several restaurants... unless you do it home.

Ticket of 3 Euros will be provided by JUAS for one meal per day.

## Transportation :

**No public buses transportation.** Super-market at St-Julien-en-Genevois is at walking distance.

Bus stop at La Croix de Rozon (1200 m from JUAS) to Geneva.

Bus stop at Wittam Park (800 m from La Colombiere) for Geneva and for Annecy.

In addition, some of you have cars.

Read brochure "Students Information file" given to you or ask Filiz for detailed information.



# **STUDENTS' INFORMATION FILE JUAS 2012**

**Additional Information to our website :**

[www.cern.ch/juas](http://www.cern.ch/juas)

# About accommodation

- **RESIDENTIAL Residence (Archamps)**

Contact person : Ms Bernadette Depierre (Laetitia, the assistant speaks English)

Mobile phone : +33.6.17.97.32.25

Phone number : +33.4.50.31.25.25

- **Logitop Résidence Grand Angle (Archamps)**

Contact person : Ms Joelle ROUVIERE

Phone number : +33.4.50.43.26.00

- **La Colombière (Neydens)**

166 Chemin Neuf, 74160 Neydens

Famille BUSSAT

Phone number : +33.4.50.35.13.14

[www.camping-la-colombiere.com](http://www.camping-la-colombiere.com)

- **IBIS Hotel (Archamps)**

Phone number : + 33-(0)4-50-95-38-18

Fax number : + 33-(0)4-50-95-38-95

Website : [www.ibishotel.com](http://www.ibishotel.com)

# Your contribution to JUAS

## Presence sheets :

To be signed once a day.

We need it for Administration purposes (funding, statistics, etc...)

## Appreciation sheets :

JUAS needs your appreciations on the lectures/lecturers.

Appreciation forms will be given to you for that purpose. One per week.

Please bend down on that form as long as necessary, think of it, fill it,

and... *return it to us...*

# Appreciation sheets

## Your impressions on the programme

Course 1 and Course 2

The Advisory Board has done its best to present a balanced syllabus. Your impressions on the course, however, are the best source of information we have concerning the appropriateness and level of the topics covered.

Please take time to fill out this sheet and give it back to JUAS Assistant Filiz Demolis.

You do not have to put your name on the form, although it can be useful for us to know which country / university system you come from when analysing your comments.

### MARKING

**Between 0 and 5 Example :**

<b>Requested Level</b>	<b>Oral Presentation (Pedagogy)</b>	<b>Written Documentation</b>
<b>Too much = 5 As expected = 3 Too low = 0</b>	<b>Excellent = 5 Satisfactory = 3 Bad = 0</b>	<b>Excellent = 5 Satisfactory = 3 Not acceptable = 0</b>

**Name (optional) :** \_\_\_\_\_

# Job opportunities from JUAS

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

➡ Internship or traineeship in European Laboratories,

➡ Summer job,

➡ a PhD grant,

or other job opportunity.

**-talk to the lecturers, question them on that.**

**-talk to people you'll meet during the various Laboratory visits.**

**-we keep updated the JUAS web site with job/traineeship/PhD/post announcements.**



# Accelerator Conference prize for JUAS

Each year JUAS is allotted a grant by the

**International Particle Accelerator Conference called “IPAC”**

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

1. To follow both JUAS courses
2. To obtain the best marks at the examination
3. To continue in the field of particle accelerator at the time of the conference
4. To be proposed by JUAS Director to IPAC Conferences Coordinator
5. To present work at the conference, abstract/poster and contribution to proceedings
6. To serve as required, scientific secretary, etc. as for other supported students

# JUAS laureates

2006 : Javier Barranco	UPC Madrid,	PAC 2007, US
2006 : Matthias Euler	TU-Darmstadt,	EPAC 2008, Genoa
2007 : Alexandre Pichard	INP-Grenoble,	EPAC 2008, Genoa
2008 : Christopher Bauer	TU-Darmstadt,	PAC 2009, Vancouver
2009 : Timo Bloch	TU-Darmstadt,	IPAC 2010, Kyoto, 23-28 May
2010: Philipp John	TU-Darmstadt	IPAC 2011, San Sebastian, 4-9 September
2010: Javier Jongalez	Valencia - Spain	IPAC 2011, San Sebastian, 4-9 September
2011: Yan Dutheil	J. Fourrier Grenoble	IPAC 2012, New Orleans, 20-25 May

## Future JUAS Promotions :

1 another possible grant for JUAS 2012 student to attend IPAC'12 (New Orleans - USA)

1 grant to attend IPAC'13 (China)

# Last but not least

Please **ARRIVE ON TIME AT THE LECTURES**

It means, manage to be installed 5 minutes ahead of schedule (usually 9 a.m., morning and 2 p.m., afternoon session) :

*lectures are short, lecturers cannot afford wasting time*

*being late means disturbing everyone, including the lecturers...*

**Now you are ready to start the first course:  
“Sciences & Physics of Particles Accelerators”**

**I wish you a pleasant stay**

**at JUAS 2012**