



# juas...



## JOINT UNIVERSITIES ACCELERATOR SCHOOL SCIENCE, TECHNOLOGY & APPLICATIONS OF PARTICLE ACCELERATORS



### NEXT SESSION

Course 1 : 13 Jan – 14 Feb 2020

Course 2 : 17 Feb – 19 Mar 2020

### ON-LINE APPLICATIONS

Course 1 : 2 Sep – 27 Oct 2019

Course 2 : 2 Sep – 24 Nov 2019

[www.juas.eu](http://www.juas.eu)

### CONTACT

[juas@esi-archamps.eu](mailto:juas@esi-archamps.eu)



### MORE THAN 45 000 PARTICLE ACCELERATORS WORLDWIDE

Invented at the turn of the 20<sup>th</sup> century, particle accelerators developed as the workhorses of nuclear and particle physics to become the largest scientific instruments ever built by man. Today, they exist in many forms and constitute essential tools for the study of condensed matter and biomolecules. Although little known to the general public, they also have numerous applications which impact our daily lives: in medical diagnostics and treatment, the polymer and electronic component industries, public security and food and health product safety.

### PREPARING THE DESIGNERS, BUILDERS AND OPERATORS OF TOMORROW'S PARTICLE ACCELERATORS

**JUAS** offers Master, PhD students and young professionals two intensive 5-week courses delivered by a faculty comprising some 50 experts from academia, research facilities and industries active in the field. Course 1 addresses the science of particle accelerators, whereas course 2 covers technology and applications.

The curriculum is overseen by an international Advisory Board which includes **JUAS's** 16 participating universities. Both courses are concluded by exams so that the latter may attribute ECTS and/or doctoral credits to their participating students.

### SCHOOL DIRECTOR

Dr. Philippe Lebrun (CERN Ret.)

### LOCATION -

#### ON SITE COORDINATION

European Scientific Institute  
Greater Geneva (Archamps, France)

ECTS and doctoral credits awarded by  
participating universities

Minimum B2 English level

Limited number of participants



**JUAS** proposes an innovative pedagogical approach, with a unique mix of lectures, tutorials, seminars, group workshops, practical sessions and laboratory visits, including CERN, ESRF Grenoble, Paul Scherrer Institut, Geneva University Hospital and Bergoz Instrumentation.

• Course 1 •

## THE SCIENCE OF PARTICLE ACCELERATORS

### RELATIVITY

Prof Heino Henke (TU Berlin ret.)

### ELECTRO-MAGNETISM

Prof Heino Henke (TU Berlin ret.)

### PARTICLE OPTICS

(to be confirmed)

### ACCELERATOR DESIGN

Dr Phil Bryant (CERN ret.)

### INJECTION / EXTRACTION

Dr Thomas Perron (ESRF)

### TRANSVERSE BEAM DYNAMICS

Dr Andrea Latina (CERN)

### MAD-X

Dr Guido Sterbini & team (CERN)

### CYCLOTRONS

Dr Bertrand Jacquot (GANIL)

### LONGITUDINAL BEAM DYNAMICS

Dr Elias Métral, Dr Benoît Salvant (CERN)

### LINACS

Prof. David Alesini (INFN)

### LINEAR IMPERFECTIONS & NON-LINEAR EFFECTS

Dr Hannes Bartosik (CERN)

### SYNCHROTRON RADIATION

Dr. Rasmus Ischebeck (PSI)

### SPACE CHARGE AND INSTABILITIES

Prof Mauro Migliorati  
(University of Rome La Sapienza)

• Course 2 •

## THE TECHNOLOGY & APPLICATIONS OF PARTICLE ACCELERATORS

### RF ENGINEERING

Dr Fritz Caspers (CERN ret.),  
Dr Manfred Wendt (CERN), Prof Andrea Mostacci (University of Rome La Sapienza)

### VACUUM SYSTEMS

Dr Vincent Baglin & team (CERN)

### BEAM INSTRUMENTATION

Dr Peter Forck (GSI)

### SUPERCONDUCTING RF CAVITIES

Dr Fritz Caspers (CERN ret.)

### ACCELERATOR CONTROL

Dr Elke Zimoch (PSI)

### NORMAL CONDUCTING MAGNETS

Dr Thomas Zickler & team (CERN)

### SUPERCONDUCTING MAGNETS

Dr Paolo Ferracin & team (CERN)

### PARTICLE SOURCES

Dr Thomas Thuillier (LPSC)

### LOW-ENERGY ELECTRON ACCELERATORS

Prof Wim Mondelaers  
(University of Ghent)

### ACCELERATORS FOR INDUSTRIAL & MEDICAL APPLICATIONS

Dr Wiel Kleeven (IBA)

### SURVEY AND ALIGNMENT OF ACCELERATORS

Dr. Hélène Mainaud-Durand (CERN)

### LIFE-CYCLE & RELIABILITY OF PARTICLE ACCELERATORS

Dr Samuel Meyroneinc (Institut Curie)

### HIGH-CURRENT PROTON LINACS

Dr Sébastien Bousson (IPN Orsay)

### RADIATION ONCOLOGY

Prof Raymond Miralbell (HUG)

### RADIATION SAFETY

Dr Xavier Queralt (ISIS)



"Our students regularly come from more than 20 countries, exemplifying the international reputation and attractiveness of JUAS"

PHILIPPE LEBRUN, JUAS DIRECTOR

"The courses really helped me with the realization of my Master project and motivated me to continue my career in accelerator physics"

Nuria, University of Valencia/CERN

"An invaluable opportunity to have top-level professionals as lecturers."

Vittorio, University of Rome La Sapienza

"The visits were awesome opportunities to meet experts in their place of work"

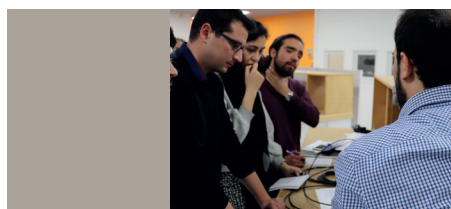
Antoine, Université Paris-Sud

"I made many valuable friendships with interesting and open-minded people from all over the world."

Maciej, University of Wrocław

"The best course I ever attended in my life"

Dinesh, Manipal University



#### PARTICIPATING UNIVERSITIES



#### SCIENTIFIC AND INDUSTRIAL PARTNERS



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European Scientific Institute