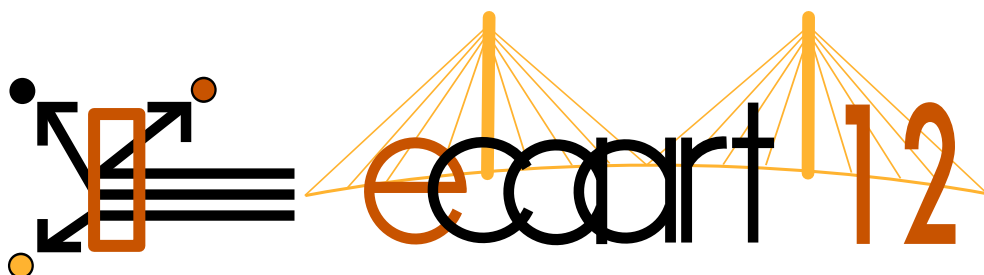


**12<sup>th</sup> European Conference on Accelerators  
in Applied Research and Technology**

**ABSTRACT BOOK  
AND PROGRAMME**



**July 3–8, 2016  
Jyväskylä, Finland**

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## Welcome

Dear colleague,

We welcome you to join us at the 12th European Conference on Accelerators in Applied Research and Technology (ECAART12) hosted by the Department of Physics of the University of Jyväskylä, Finland, on 3rd – 8th July, 2016.

The first ECAART conference was held in Frankfurt (1989) and over almost three decades it has kept its status as a high level conference reporting latest developments in the field of particle accelerators and their applications. The previous ECAART conferences were organized in Florence (2007), Athens (2010) and Namur (2013), and in 2016 ECAART is the first time organized in Scandinavia. The Accelerator Laboratory in Jyväskylä is a national research infrastructure in the field of nuclear and accelerator based physics with two cyclotrons, a 1.7 MV Pelletron and a 20 MeV electron LINAC. The research covers many of the ECAART topics and therefore we are especially proud to have the conference site in Agora, only some hundred meters from the laboratory.

Following the tradition, there are no parallel sessions in ECAART12. There will be all together 13 invited talks, 29 contributed talks, and more than 110 poster presentations. The posters are divided into Tuesday and Thursday sessions and they are visible also the day before the session. There is one special session on Tuesday morning celebrating 40 years of elastic recoil detection analysis (ERDA) and we are proud to have professor Jacques L'Écuyer, the first author of 1976 ERDA paper as an invited speaker in this session. On Wednesday before the lunch and outing there is a special discussion session about the current status of the ion beam technology roadmap, an initiative by the IAEA.

Excellent science is an important part of a scientific meeting but equally important it is to meet old friends and make new ones. We are convinced that Jyväskylä, a lively city with one of the biggest universities in Finland in the middle of the Finnish Lake District will promote all of this. During the social program also the clean nature, short midsummer nights and, of course, Finnish sauna will become familiar to the conference participants.

We will do our utmost to make sure that you will feel at home and together we will make this conference a productive and engaging one.

*Prof. Timo Sajavaara*

*Chair of the local organizing committee of ECAART12*

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## Organisation and contact details

### Local organizing committee of ECAART12

- Prof. Timo Sajavaara (chair), timo.sajavaara@jyu.fi, +358 50 555 3899
- M.Sc. Elina Leskinen (secretary), elina.leskinen@jyu.fi, +358 50 581 8351
- Dr. Kai Arstila (vice-chair), kai.arstila@jyu.fi
- Dr. Ari Virtanen (vice-chair), ari.j.virtanen@jyu.fi
- Dr. Arto Javanainen, arto.javanainen@jyu.fi
- Dr. Taneli Kalvas, taneli.v.m.kalvas@jyu.fi
- Dr. Mikko Laitinen, mikko.i.laitinen@jyu.fi
- Dr. Olli Tarvainen, olli.tarvainen@jyu.fi

For help, contact the info desk, write an e-mail to [ecaart12@jyu.fi](mailto:ecaart12@jyu.fi), or talk to the conference staff (in blue band). For urgent matters, call + 358 50 581 8351.

If you have questions concerning registration, payments, receipts, etc., please contact: Tavicon Oy (+358 3 233 0400, [ecaart12@tavicon.fi](mailto:ecaart12@tavicon.fi)). Tavicon Oy is responsible for the registration. Tavicon representatives are present on Sunday and Monday at the info desk.

In case you need any medical assistance at the conference venue, please contact + 358 50 581 8351. In case of an emergency, please call 112.

E-mail: [ecaart12@jyu.fi](mailto:ecaart12@jyu.fi)

WWW-pages: [www.ecaart12.fi](http://www.ecaart12.fi), Twitter: [#ecaart12\\_jyu](https://twitter.com/ecaart12_jyu) or [#ecaart12](https://twitter.com/ecaart12)

### International Committee:

- L. Beck, France
- K. Bethge, Germany
- T. Calligaro, France
- F. Ditrói, Hungary
- M. Döbeli, Switzerland
- A.F. Gurbich, Russia
- J. Räisänen, Finland
- W. Kutschera, Austria
- M. Lindroos, Sweden
- P.A. Mandò, Italy
- P. Misaelides, Greece
- A. Pedro de Jesus, Portugal
- M.A. Respaldiza, Spain
- D. Strivay, Belgium
- G. Terwagne, Belgium
- R. Webb, United Kingdom

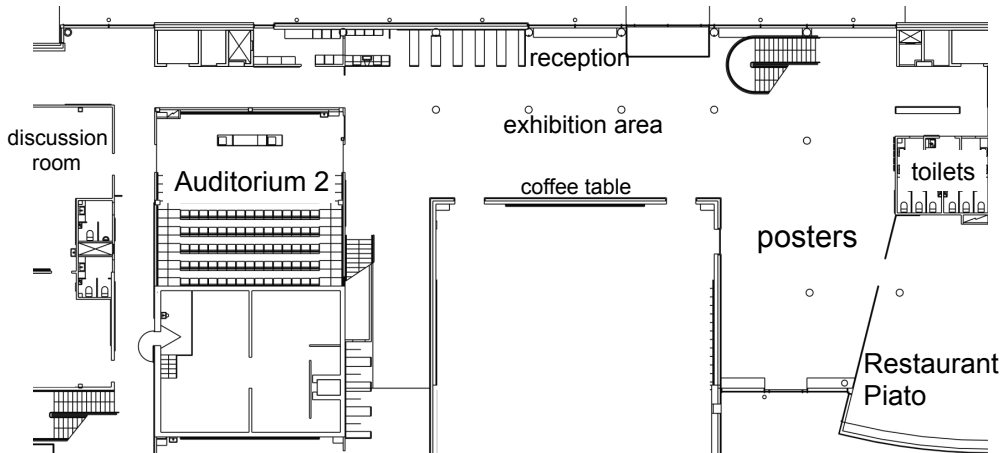
# General information

## Conference location

Auditorium 2, Agora building of the University of Jyväskylä (see the floorplan below)

WGS84 coordinates lat: 62.23217° lon: 25.73669°

Street address: Agora, Mattilanniemi 2, 40100 Jyväskylä, Finland



## Conference registration/info desk

The registration desk will be open on Sunday 3rd of July from 16 until 21. The registration/info desk will be open during all the conference days from 8.30 in the morning until conference activities are over in Agora for that particular day. See daily schedule for details.

## Oral presentations

Oral contributions are scheduled in 20-minute (30-minute for invited speakers) time slots and we strongly encourage a presentation of no more than 15 minutes (25 minutes) to allow questions from the audience during the remaining five minutes. The time limits will be strictly enforced to ensure a smooth running of the conference. The oral presentations in either PDF or PowerPoint format have to be uploaded to the organizer's computer before the session. The presentations are best displayed in 4:3 ratio, not wide screen.

## Poster presentations

The poster sessions are organized on Tuesday July 5th (session A) and Thursday July 7th (session B) in the main hall of the Agora building. Poster boards with 97×135 cm of space (fits A0 in portrait orientation) are available for mounting the posters. The posters can be mounted on the day before the presentation and should be unmounted immediately after the poster session. The posters are mounted on the boards using double-sided tape provided by the organizers. The best young presentation award will be given in the conference dinner.

## **Lunches and coffee breaks**

All coffee breaks and lunches during conference are included in the conference fee. You will find vouchers for the lunches in your conference bag. Lunch will be available in the restaurant Piato. Piato is located on the ground floor of the Agora building. At the Piato the voucher can be used to obtain a full menu including a main course (meat, fish or vegetarian), a salad, a drink, bread and dessert coffee or tea. Remember to wear the conference badge throughout the conference.

## **Conference Proceedings**

ECAART12 proceedings will be published by Elsevier Science Publishers B.V. in a special issue of Nuclear Instruments and Methods in Physics Research, section B, Beam Interactions with Materials and Atoms (NIM B). The manuscripts need to be submitted to the Elsevier online submission system before 15 of July 2016 for peer-review process. Submitted papers should be an original work associated with the symposium topics, which has not been previously published. There is no official template for the NIM B. The final formatting will be done by the editors. Nevertheless, we recommend the use of templates available at the ECAART12 website for preparing the paper. Please contact Timo Sajavaara (timo.sajavaara@jyu.fi) for proceedings related questions.

## **Internet Access and printing**

The University of Jyväskylä is part of the eduroam (education roaming) network. The configuration instructions are specific for your institution. If your device is not yet configured, please go to [www.eduroam.org](http://www.eduroam.org) or contact your institution's IT staff.

WiFi access at the university is also possible through specific congress accounts. To access the University WLAN-network you will need username and password, which you will get in your conference bag. In Agora there is also an open free WiFi access (agora-open).

If you like to use University computers, you will need username and password. With user name and password you are able to log on to public computers all over the campus areas. Computers can be found in every building.

- Username: phys-guest1
- Password: Ecart123!

If you need to get something printed, please contact the info desk.

## **Conference Photo**

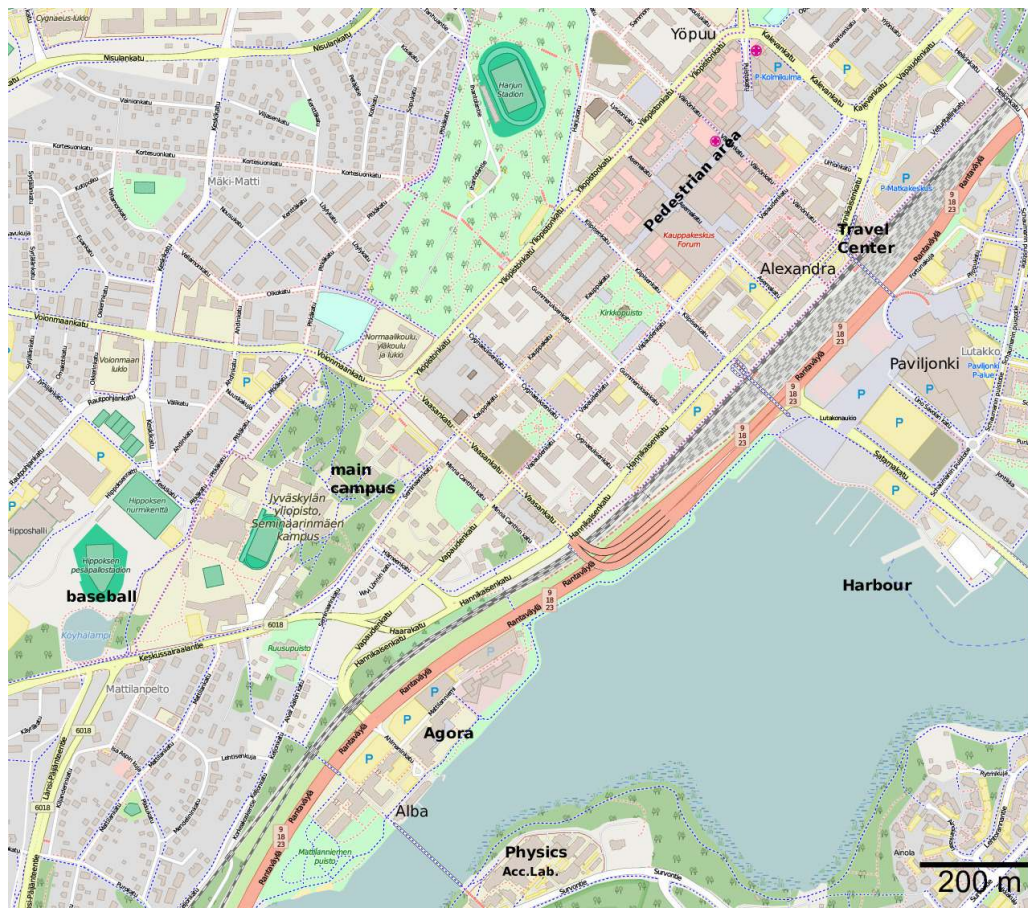
The conference photo will be taken on Monday 4th of July after the second session at 12.30, just before the lunch.

## **Accelerator Laboratory visit**

On Monday at 16.20 we will gather between Agora and Lake Jyväsjärvi and then walk (5 min.) in five groups across the lake to visit the Accelerator Laboratory.

## Jyväskylä city map

The map shows the most relevant places in the ECAART12 conference. The city center with most of the restaurants and stores is around the pedestrian area. ©OpenStreetMap contributors



# Social programme

Our social programme will enable you to discover our town as well as its beautiful surrounding area. In addition to the social program, there are a lots of happenings in Jyväskylä! Go and see the museums, visit a football or a Finnish baseball game or enjoy the music provided by many events in Jyväskylä summer. You may also enjoy the clean nature of Finland by having a picnic in a park, playing some frisbee or football at the grass or swimming in the lakes.

## Welcome Reception

The congress welcome reception offers delegates a perfect opportunity to relax and enjoy informal drinks with colleagues and associates as part of the warm welcome to the 12th European Conference on Accelerators in Applied Research and Technology. High Voltage Engineering Europa B.V. is gratefully acknowledged for sponsoring this event.

**Time:** Sunday 3rd of July, 2016 at 19:00 – 21:00.

**Location:** Agora hall.

**Inclusions:** Beverages and canapés.

## City tour with city guide

For accompanying persons walk to the center of the city showing the main museums, attractions and shopping areas on Monday morning. Learn about the history and architecture of the campus and city of Jyväskylä.

**Time:** Monday 4th of July, 2016 at 10:30 – 12:30.

**Location:** Departure in front of the Agora at 10:30. Transportation back to the Agora at 12:30.

## Monday and Tuesday evenings

There is no fixed program for these two evenings but there is much to do in Jyväskylä. There will be several companies presenting their outdoor activities during the welcome reception of Sunday. There is also a possibility to see top level Finnish baseball (our national sport) on Tuesday evening, please sign in at the info desk. The baseball match will be free for the conference participants, other activities are at own expense.

## Conference outing: The Varjola Holiday Center

Varjola farm has a wide range of activities and organised experiences in beautiful Finnish countryside. You will have a wonderful chance to enjoy Finnish culture, spend time outdoors. Possibilities for walks in the nature, white water rafting and games. In Varjola area the traditional Finnish Smoke saunas offer you a relaxing experience that you will never forget.

**Time:** Wednesday 6th of July, 2016 at 13:30–22:00

**Location:** Busses will take us there from Agora at 13:30, please be on time. There is bus transportation back to the Travel Center and Agora after the dinner at 21:30.

**Inclusions:** Beverages and dinner.

**Dress:** Suitable clothes for outdoor activities. If you do the white water rafting, and we strongly recommend that, you might want to bring some extra dry clothes with you.

**Sauna:** There will be separate saunas for women and men, towels will be provided. If you want to go swimming from the sauna, as Finns normally do, bring your swimming suit with you.

## Cruise and Conference Dinner at Savutuvan Apaja

Finland is the country of thousands lakes and Jyväskylä lies at the very center of the Finnish Lake District. The conference participants will be offered an opportunity to enjoy the peaceful lake scenery with typical Finnish summer cottages along the shore by taking an evening cruise on Lake Päijänne, the second largest lake in Finland. After cruising about an hour on the lake, the boat will come ashore at Savutuvan Apaja where the dinner will be served in a unique atmosphere. Savutuvan Apaja consists of over 30 peasant buildings, the oldest of which is over 200 years old. The yard with its historic buildings built of timber let you experience what it was like living in Central Finland in the past.

**Time:** Thursday 7th of July, 2016, 16:45–24:00

**Location:** M/s Suomen Suvi cruise ship will take us Savutuvan Apaja from Hotel Alba at 16.45 and Jyväskylä harbor at 17:00 so please be on time. There is bus transportation back to the Agora with a stop at the Travel Center after the dinner at 24:00.

**Inclusions:** Beverages and dinner. Live music throughout the night presented by Pallomeri.

**Dress:** The night can get bit chilly, so you better have some warmer clothes with you.

## Visitor information

The info desk offers information about the city and its sights, events, restaurants, souvenirs and services. Get the tips and advice for making the most of your conference.

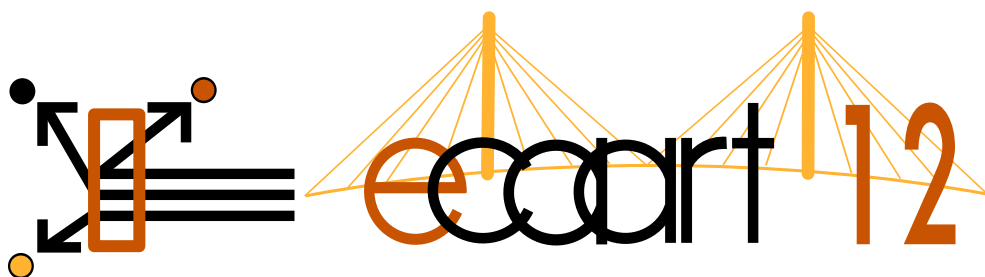
## Thank you

We would like to thank you in advance for participating in the 12th European Conference on Accelerators in Applied Research and Technology (ECAART12). We wish that you, just like us, will have an interesting week with lots of new insights and fun as well. Hopefully we have given you a good impression of University of Jyväskylä and city of Jyväskylä.

If you want to share your photos or videos, please send them to [ecaart12@jyu.fi](mailto:ecaart12@jyu.fi) as we will create a Dropbox account. You will receive an invitation to join this account in August.

*Organisation of ECAART12*





## Scientific Program

# Monday 4.7.2016

8:45 – 9:00	Opening remarks	
<b>Medical, biological and environmental applications</b>		<b>Chair: Iva Bogdanović Radović</b>
9:00 – 9:30	<b>M.Q. Ren</b> <i>National University of Singapore, Singapore</i> Analytical Possibilities of Highly Focused Proton Beam in Biomedical Field	I-1
9:30 – 9:50	<b>Koji Noda</b> <i>National Institute of Radiological Sciences, Japan</i> Recent progress and future plan of heavy-ion cancer radiotherapy with HIMAC	O-1
9:50 – 10:10	<b>Cátia Santos</b> <i>Universidade Nova de Lisboa, Portugal</i> Measurement of the Ca/P ratio of samples with Paget's disease of bone and osteoporosis by PIXE, PIGE and micro-XRF	O-2
10:10 – 10:30	<b>Roger P. Webb</b> <i>University of Surrey, UK</i> Ambient Pressure Mass Spectrometry of Fingerprints: An Opportunity for MeV-SIMS	O-3
10:30 – 11:00	<b>Coffee</b>	
<b>Ion beam modification and radiation effects</b>		<b>Chair: Jyrki Räisänen</b>
11:00 – 11:30	<b>Arto Javanainen</b> <i>University of Jyväskylä, Finland</i> Radiation effects in electronics – featuring power devices	I-2
11:30 – 11:50	<b>Leonard C. Feldman</b> <i>Rutgers University, USA</i> Ion Beam Science Applied to Silicon Carbide Technologies	O-4
11:50 – 12:10	<b>Shavkat Akhmadaliev</b> <i>Helmholtz-Zentrum Dresden-Rossendorf, Germany</i> Depth profiled ion implantation doping using an energy filter based on Si membrane	O-5
12:10 – 12:30	<b>Jakub Cajzl</b> <i>University of Chemistry and Technology, Prague, Czech Republic</i> Erbium doped nanocrystalline diamond thin films	O-6
12:30 – 14:00	<b>Lunch</b>	
<b>Accelerator mass spectrometry</b>		<b>Chair: Alfred Dewald</b>
14:00 – 14:30	<b>Caroline Welte</b> <i>ETH Zurich, Switzerland</i> Laser Ablation – Accelerator Mass Spectrometry: rapid and spatially resolved radiocarbon analyses of carbonate archives	I-3
14:30 – 14:50	<b>Peter Steier</b> <i>University of Vienna, Austria</i> The ILIAS project – Isobar suppression in AMS by laser photodetachment	O-7
14:50 – 15:10	<b>Klaus Wilcken</b> <i>ANSTO, Australia</i> Accelerator Mass Spectrometry on SIRIUS: new 6 MV spectrometer at ANSTO	O-8
15:10 – 15:30	<b>Markus Schiffer</b> <i>University of Cologne, Germany</i> A dedicated AMS setup for medium mass isotopes at the Cologne FN-Tandem Accelerator	O-9
15:30 – 15:50	<b>Vesa Palonen</b> <i>University of Helsinki, Finland</i> Biofraction measurements of methane for environmental and metrological applications	O-10
15:50 – 16:20	<b>Coffee</b>	
16:20 – 18:00	<b>Lab visit</b>	

## Tuesday 5.7.2016

### Elastic Recoil Detection Analysis 40 years

Chair: Max Döbeli

9:00 – 9:40	<b>Jacques L'Écuyer</b> The development of ERDA	I-4
9:40 – 10:10	<b>Stephan Eschbaumer</b> <i>Universität der Bundeswehr München, Germany</i> An angular sensitive time of flight setup for heavy ion ERD	I-5
10:10 – 10:30	<b>Timo Sajavaara</b> <i>University of Jyväskylä, Finland</i> Conceptual study of high-performance heavy-ion-ERDA spectrometer for energies below 6 MeV	O-11

10:30 – 11:00

**Coffee**

### Applications to art and archeology

Chair: Miguel A. Respaldiza

11:00 – 11:30	<b>Claire Pacheco</b> <i>Centre de Recherche et de Restauration des Musées de France, Paris, France</i> From AGLAE to New AGLAE	I-6
11:30 – 11:50	<b>Lucile Beck</b> <i>LMC14, Saclay, France</i> Analysis and dating of the Preuchdorf hoard (Alsace, France) by IBA and AMS	O-12
11:50 – 12:10	<b>Iva Bogdanović Radović</b> <i>Ruđer Bošković Institute, Zagreb, Croatia</i> Identification and imaging of modern paint materials using MeV-SIMS	O-13
12:10 – 12:30	<b>Alexandre Subercaze</b> <i>Subatech, Nantes, France</i> Thick multi-layers analysis with high energy PIXE	O-14

12:30 – 14:00

**Lunch**

### Ion source and accelerator technology

Chair: Leonard C. Feldman

14:00 – 14:30	<b>Victor Malka</b> <i>CNRS, Ecole Polytechnique, France</i> Manipulating Electrons with Intense Laser Pulses	I-7
14:30 – 14:50	<b>Matthias Klein</b> <i>High Voltage Engineering Europa B.V., Amersfoort, Netherlands</i> Technical improvements and performance of the HVE AMS sputter ion source SO110	O-15
14:50 – 15:10	<b>M.V. Mores</b> <i>National Electrostatics Corp., Middleton, Wisconsin, USA</i> Recent Projects and Future Collaborations at National Electrostatics Corp.	O-16
15:10 – 15:30	<b>Taneli Kalvas</b> <i>University of Jyväskylä, Finland</i> Application and development of ion source technology for electronics radiation effects testing	O-17
15:30 – 15:50	<b>Kenichiro Mizohata</b> <i>University of Helsinki, Finland</i> Accelerators of University of Helsinki on the IAEA Ion Beam Technology roadmap	O-18

15:50 – 16:20

**Coffee**

16:20 – 18:00

**Poster session A**

## Wednesday 6.7.2016

<b>Fundamentals and simulations</b>		<b>Chair: Kai Arstila</b>
9:00 – 9:30	<b>Jeremy M C Brown</b> <i>Queen's University Belfast, United Kingdom</i> Applications of Geant4 to ion beam and synchrotron science	I-8
9:30 – 9:50	<b>M. Mayer</b> <i>Max-Planck-Institut für Plasmaphysik, Garching, Germany</i> Computer Simulation of Backscattering Spectra from Paint	O-19
9:50 – 10:10	<b>Michael Kokkoris</b> <i>National Technical University of Athens, Greece</i> CSIM – A new code for the simulation of channeling EBS/RBS spectra	O-20
10:10 – 10:30	<b>Guy Terwagne</b> <i>University of Namur, Belgium</i> Development of an ultra-low background detection facility	O-21
10:30 – 11:00	<b>Coffee</b>	
<b>Ion beam technology and industry</b>		<b>Chair: Ian Vickridge</b>
11:00 – 11:30	<b>J. Meersschaut</b> <i>Imec, Leuven, Belgium</i> High-throughput ion beam analysis in an industrial environment	I-9
11:30 – 12:30	<b>Ion Beam Technology roadmap</b>	
12:30 – 13:30	<b>Lunch</b>	
13:30 – 22:00	<b>Conference outing</b>	

## Thursday 7.7.2016

Instruments and techniques for materials research		Chair: Ferenc Ditrói
9:00 – 9:30	<b>Simo Huotari</b> <i>University of Helsinki, Finland</i> Recent developments in synchrotron light sources and new possibilities for materials research	I-10
9:30 – 9:50	<b>Charles-Olivier Bacri</b> <i>CNRS-CSNSM, Orsay, France</i> SCALP, a platform for synthesis and characterization of materials	O-22
9:50 – 10:10	<b>M. Fonseca</b> <i>Universidade Nova de Lisboa, Portugal</i> Quantitative analysis of Li by PIGE technique	O-23
10:10 – 10:30	<b>Victor Alarcon-Diez</b> <i>Sorbonne Universités, France</i> Charge Collection Efficiency in Segmented Semiconductor Detector interstrip region	O-24
10:30 – 11:00	<b>Coffee</b>	
Analysis and modification using heavy ions		Chair: Roger Webb
11:00 – 11:30	<b>Zdravko Siketić</b> <i>Ruder Bošković Institute, Zagreb, Croatia</i> Two modes for molecular imaging using MeV-SIMS at the heavy ion microprobe	I-11
11:30 – 11:50	<b>Toshio Seki</b> <i>Kyoto University, Japan</i> Chemical analysis under ambient conditions using swift heavy ion beams	O-25
11:50 – 12:10	<b>Kenji Morita</b> <i>Nagoya Industrial Science Research Institute, Japan</i> In-situ Depth Profiling of Li in Solid State Li Ion Battery under Charging by Means of ERDA and RBS Techniques with 9 MeV O <sup>+4</sup> ion	O-26
12:10 – 12:30	<b>Florent Moisy</b> <i>CIMAP, Caen, France</i> Point defects and structural modifications in Al <sub>x</sub> Ga <sub>1-x</sub> N nitride semiconductors under heavy ion irradiation	O-27
12:30 – 14:00	<b>Lunch</b>	
14:00 – 15:50	<b>Poster session B</b>	
16:45 – 24:00	<b>Cruise and conference dinner</b>	

## Friday 8.7.2016

<b>Accelerator technology and radiation hard materials</b>		<b>Chair: Ari Virtanen</b>
9:00 – 9:30	<b>Markus Strobl</b> <i>ESS ERIC, Lund, Sweden</i> ESS – the promises of an accelerator in the service of neutron science	I-12
9:30 – 9:50	<b>Alexandre Bosser</b> <i>University of Jyväskylä, Finland</i> R2RAM project: Development and characterization of a radiation-hard resistive random-access memory	O-28
9:50 – 10:10	<b>Tianjue Zhang</b> <i>China Institute of Atomic Energy, Beijing, China</i> mA Beam Acceleration Efforts on 100 MeV H <sup>-</sup> Cyclotron at CIAE	O-29
10:10 – 10:30	<b>Coffee</b>	
<b>Quality assurance in IBA</b>		<b>Chair: Timo Sajavaara</b>
10:30 – 11:00	<b>Chris Jeynes</b> <i>University of Surrey Ion Beam Centre, United Kingdom</i> RBS as a new "primary direct reference method" for measuring Quantity of Material	I-13
11:00 – 11:30	<b>Concluding remarks</b>	
11:30 – 11:45	<b>Closing of the conference</b>	
11:45 – 13:00	<b>Lunch</b>	

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## Tuesday 5.7.2016 – Poster session A

Identification of optimisation parameters for enhancement of ion yield in Ambient Pressure MeV SIMS <i>Lidija/LM Matjačić</i>	PA-1
Proton-induced gamma-ray production cross sections and thick target yields for boron, nitrogen and silicon <i>Kenichiro Mizohata</i>	PA-2
Extension of the evaluation of the $^{nat}\text{S}(p, p_0)$ differential cross section up to $E_p = 4.6$ MeV <i>V. Paneta</i>	PA-3
Electron Linear Accelerator System for Natural Rubber Vulcanization <i>Sakhorn Rimjaem</i>	PA-4
New measurements on ionization cross sections for high energy PIXE <i>Alexandre Subercaze</i>	PA-5
Complementary analysis using PIXE and RBS for thin films <i>I. Harayama</i>	PA-6
Modified Rogowski Coil for Detecting Fast Plane Beams <i>Vincenzo Nassisi</i>	PA-7
IBA analysis and mechanical characterization of TiAlPtN / TiAlN / TiAl multilayer films deposited over CoCrMo by means of Plasma Enhanced Magnetron Sputtering <i>Eduardo Andrade</i>	PA-8
Studies on wear and corrosion resistance for a TiAlPtN / TiAlN / TiAl multilayer over a CoCrMo substrate prepared by plasma enhanced magnetron sputtering <i>Eduardo Andrade</i>	PA-9
High Resolution Heavy Ion ERD at the Munich Q3D Spectrograph <i>Andreas Bergmaier</i>	PA-10
Dye and electrolyte impregnation in templated TiO <sub>2</sub> photoelectrodes monitored by combined alpha PIXE and Rutherford backscattering spectrometry <i>David Strivay</i>	PA-11
PIXE-PIGE analysis of Early Medieval Glass Artefacts at IPNAS cyclotron external beam line <i>David Strivay</i>	PA-12
Oxy-nitrides characterization with a new ERD-TOF system <i>Martin Chicoine</i>	PA-13
The Time-Resolved Ion Beam Induced Luminescence (TRIBIL) setup at LABEC and its preliminary results <i>Caroline Czelusniak</i>	PA-14

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Determination of sulfur density of particulate matter in exhaust gasses from a diesel engine by Rutherford backscattering spectroscopy <i>Yuichi Furuyama</i>	PA-15
Elastic Recoil Detection Analysis of Thin Films <i>Pasi Jalakanen</i>	PA-16
Development of high-speed wavelength-dispersive IBIL analysis and imaging system using multi-channel photon-counting spectrometer <i>Wataru Kada</i>	PA-17
Elastic scattering cross section measurements on $^{19}\text{F}$ <i>Michail Kokkoris</i>	PA-18
Advanced mass discrimination in recoil spectrometry <i>Grazia Laricchiuta</i>	PA-19
Structural and optical properties of metal ion implanted GaN <i>Anna Macková</i>	PA-20
RBS spectra simulation including 3D surface morphology implementation <i>Petr Malinsky</i>	PA-21
Electronic stopping powers of axial channelled He and Li ions in a Si crystal <i>Romana Miksova</i>	PA-22
High Resolution Gas Ionization Chamber in Proportional Mode <i>Arnold Milenko Müller</i>	PA-23
ERDA at the 9 MV Tandem and at the 3 MV Tandetron of NIPNE-HH <i>D. Pantelica</i>	PA-24
Analysis of light elements and results comparison between NRA, HI-ERDA, $\mu$ -Raman and SIMS <i>Stéphanie Pellegrino</i>	PA-25
Development of a simulation code for material analysis using the PIGE technique <i>K. Preketes-Sigalas</i>	PA-26
Production of Thin Targets by Implantation and Measurement of the $^{16}\text{O} + ^{16}\text{O}$ Elastic Scattering Cross Section Below the Coulomb Barrier <i>Hugo Silva</i>	PA-27
Study of the Matrix Effect on the PIXE Quantification of Active Pharmaceutical Ingredients in Different Formulations <i>Maher Soueidan</i>	PA-28
Detection limit in boron analysis of thin films deposited on Si substrate by optimization of PIGE technique <i>Maher Soueidan</i>	PA-29
Emittance matching of a slow extracted beam for a rotating gantry <i>Tetsuya Fujimoto</i>	PA-30



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Modifications in Physico-chemical properties of Swift heavy ions irradiated Polyimide Kapton-H polymer <i>Rajesh Kumar</i>	PA-31
Thin film growth in the ion track structures by atomic layer deposition <i>Laura Mättö</i>	PA-32
Compositional, structural, and optical changes of polyimide implanted with 1 MeV Ni <sup>+</sup> ions using various ion currents <i>Hana Pupikova</i>	PA-33
Introduction of conductivity to the polymer with a heavy ion beam irradiation for production of a functional polymer substrate <i>Akira Taniike</i>	PA-34
Radiation hard technology and design of HfO <sub>2</sub> based 1T1R cells and memory arrays <i>Christian Wenger</i>	PA-35
Design of a 650 MHz proton RFQ linac <i>Noriyosu Hayashizaki</i>	PA-36
Design of four-beam IH-RFQ linear accelerator <i>Shota Ikeda</i>	PA-37
Development of a Laser ion source for high intensity heavy ion beams <i>Hirotsugu Kashiwagi</i>	PA-38
Beam profilometer signal digitization for beam current integration and improved AMS diagnostics <i>Vesa Palonen</i>	PA-39
Use of a Gafchromic film HD-V2 for the Profile Measurement of Energetic Ion Beams <i>Yosuke Yuri</i>	PA-40
Radiocarbon Measurements of Small Gaseous Samples at CologneAMS <i>Alfred Dewald</i>	PA-41
AMS of <sup>93</sup> Zr: passive absorber versus gas-filled magnet. <i>Gunther Korschinek</i>	PA-42
Isobar separation performance of the Tsukuba 6 MV AMS system <i>Kimikazu Sasa</i>	PA-43
Time series analysis of rare/stable isotopic concentration AMS-data. <i>C. Solís</i>	PA-44
Actinides isotopic analysis using a 1 MV AMS system <i>Klaus Wilcken</i>	PA-45
X-ray sterilization of insects and micro organisms for cultural heritage applications <i>F Borgognoni</i>	PA-46

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Simultaneous use and self-consistent analyses of $\mu$ -PIXE and $\mu$ -EBS for the characterization of corrosion layers grown on ancient coins <i>J. Cruz</i>	PA-47
Using AIFIRA external beam line to source obsidian artefacts in western Mediterranean contexts: new evidence on Middle Neolithic Sardinia <i>S. Dubernet</i>	PA-48
Micro-PIXE as an analytical method of choice in the search for the origins of ceramics shards found at the Grounds of the Royal Palace at Angkor. <i>Vladimír Havránek</i>	PA-49
Multi-technique characterization of gold electroplating on silver substrates for cultural heritage applications <i>M.A. Respaldiza</i>	PA-50
Measurements of alpha particle induced reaction cross sections on $^{nat}\text{Cd}$ and $^{116}\text{Cd}$ for practical applications up to 50 MeV <i>Ferenc Ditrói</i>	PA-51
Commissioning of the full energy scanning irradiation with carbon-ion beams ranging from 55.6 to 430 MeV/u in NIRS-HIMAC <i>Yousuke Hara</i>	PA-52
PIXE and Zinc Histochemistry of Calcifying Aorta from Mice Overexpressing Alkaline Phosphatase in Vascular Smooth Muscle Cells <i>Adela Consuela Scafes</i>	PA-53
Proposal for facility design of carbon-ion radiotherapy <i>Mitsuhiro Takada</i>	PA-54
Development of a new ridge filter with honeycomb geometry for a pencil beam scanning system in particle radiotherapy <i>Ryohei Tansho</i>	PA-55

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## Thursday 7.7.2016 – Poster session B

Measurement of proton elastic and inelastic scattering cross section on Al from 2.5 to 4.1 MeV <i>Micaela Fonseca</i>	PB-1
X-ray production cross sections induced by 15–55 MeV $^{35}\text{Cl}$ , $^{79}\text{Br}$ and $^{127}\text{I}$ ions for selected elements <i>Kenichiro Mizohata</i>	PB-2
Approach for Realization of High Intensity Cyclotron Beam <i>Masao Nakao</i>	PB-3
Charge Collection Efficiency in Segmented Semiconductor Detector interstrip region <i>Victor Alarcon-Diez</i>	PB-5
Calibration of an analysing magnet using the $^{12}\text{C}(\text{d},\text{p})^{13}\text{C}$ nuclear reaction with a carbon thick target* <i>Eduardo Andrade</i>	PB-6
Study of sputtering yield amplification of Al, Si and C by ion beam analysis and CO-SS* <i>Eduardo Andrade</i>	PB-7
Composition and source apportionment of fine particulate matter during extended calm periods in the city of Rijeka, Croatia <i>Ioančica Bogdanović Radović</i>	PB-8
Studies on Pd and Mg thin films coated PMMA foils by magnetron sputtering <i>M. Cutroneo</i>	PB-9
Analysis of trace elements in lake sediment samples by PIXE spectrometry <i>Elena Daniela Chelarescu</i>	PB-10
Characteristics of metal nanometric layers deposited on n-GaSb (100) <i>M. D. Dracea</i>	PB-11
The study of H and D depth profiles in tungsten and steel samples by ERDA and complementary IBA techniques <i>Vladimír Havránek</i>	PB-12
Simulations of time-of-flight ERDA spectrometer performance <i>Jaakko Julin</i>	PB-13
Micro-PIXE analysis and imaging of Radio-photoluminescence glass beads dosimeter designed for micro-dosimetry <i>Wataru Kada</i>	PB-14

Minimum detection limit and applications of proton and helium induced x-ray emission using transition-edge sensor array <i>Marko Käyhkö</i>	PB-15
Atomic Layer Deposition of $\text{TiAl}_x\text{N}_y$ and $\text{TiAl}_x\text{C}_y$ Thin Films <i>Sami Kinnunen</i>	PB-16
Tang dynasty (618–907) bowl measured with PIXE <i>Mikko Laitinen</i>	PB-17
The stopping power and energy straggling of H and He ions in a graphene oxide <i>Petr Malinský</i>	PB-18
Accurate accelerator energy calibration using selected resonances in proton elastic scattering and in $(p,\gamma)$ and $(p,p\gamma)$ reactions <i>V. Paneta</i>	PB-19
The Design and Fabrication of a Time of Flight -Energy Spectrometer at Korea Institute of Science and Technolog <i>Jinho Song</i>	PB-20
Characterization of Al doped p-type SiC thin films using PIXE Technique <i>Maher Soueidan</i>	PB-21
Characterization of archeological pottery from Tyre historical site using PIXE technique and cluster analysis <i>M. Soueidan</i>	PB-22
High energy combined PIXE/PIGE analysis on geological samples <i>Alexandre Subercaze</i>	PB-23
Depth profiling of ions implanted silicon wafer using resonant elastic backscattering $\text{He} + ^{28}\text{Si}$ <i>M. Tosaki</i>	PB-24
Quantification of elements with characteristic K X-ray energies for nuclear microprobe detector setup at Jozef Stefan Institute <i>Primož Vavpetić</i>	PB-25
ERD and helium ion microscopy study of beam induced damage in non-homogeneous materials <i>Kai Arstila</i>	PB-26
Study of Structural, Optical and Electrical properties of SHI induced modified oxide based nanocomposite thin films <i>Rajesh Kumar</i>	PB-27
New experimental methods for light ion track etched pores in polymer films <i>Stewart Makkonen-Craig</i>	PB-28
Erbium ion implantation into different crystallographic cuts of zinc oxide <i>Pavla Někviňdová</i>	PB-29
Hydrophilicity Rendering of Polydimethylsiloxane using Oxygen Ion Beam Implantation <i>Nirut Pussadee</i>	PB-30

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Comparison of copper and silver ion implantation in silicate glasses <i>Blanka Svecova</i>	PB-31
New dedicated set-ups for the testing of materials under space radiation environment at IPNAS <i>David Strivay</i>	PB-32
Modelling of the Irradiation of a Nanoporous Iron Target <i>Roger P Webb</i>	PB-33
Particle Accelerator Focus Automation <i>J Cruz</i>	PB-34
Design of an electron-accelerator-driven compact neutron source for non-destructive assay <i>Aki Murata</i>	PB-35
Beam position alignment and its verification for therapeutic ion beams from synchrotron <i>Yuichi Saraya</i>	PB-36
Beam Emittance Measurements on Negative Sputter Ion Sources: Construction and Test of an Allison Scanner <i>Axel Steinhof</i>	PB-37
Experimental study of planar gamma-sources with controlled spectrum <i>Vyacheslav L. Uvarov</i>	PB-38
A method of manufacturing planar gamma-sources with controlled spectrum <i>Vyacheslav L. Uvarov</i>	PB-39
Developments for 230 MeV Superconducting Cyclotrons for Proton Therapy and Proton Irradiation <i>Tianjue Zhang</i>	PB-40
Optimization of $\Delta E - E$ detector for $^{41}\text{Ca}$ AMS measurement using PHITS code simulation <i>Seiji Hosoya</i>	PB-41
$^{26}\text{Al}$ measurements using $\text{AlO}^-$ ions and a Gas-filled Magnet <i>Klaus-Ulrich Miltenberger</i>	PB-42
A comparison between two preparation techniques prior to radiocarbon analysis of modern teeth. <i>C. Solís</i>	PB-43
Micro-PIXE mapping for the identification of prehistoric pigment provenance <i>Lucile Beck</i>	PB-44
A new small-footprint external-beam PIXE facility for cultural heritage applications using pulsed proton beams <i>F Borgognoni</i>	PB-45
Portable XRF scanner for Cultural Heritage applications <i>Anna Mazzinghi</i>	PB-46

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XRF and micro-PIXE studies of inhomogeneity of ancient bronze and silver alloys <i>Angela Vasilescu</i>	PB-47
Development of NIRS Pencil Beam Scanning System for Carbon Ion Radiotherapy <i>Takuji Furukawa</i>	PB-48
Recent progress of a superconducting rotating-gantry for carbon radiotherapy <i>Yoshiyuki Iwata</i>	PB-49
Computer Simulation and Experimental Investigation of Mo-99 yield in thick targets as a Tc-99m generator <i>Tetiana Malykhina</i>	PB-50
Performance of the HIMAC Beam Control System Using Multiple-Energy Synchrotron Operation <i>K. Mizushima</i>	PB-51
Design and performance of daily QA system for carbon ion therapy at NIRS <i>Naoya Saotome</i>	PB-52
Measurement of gamma-ray production X-sections in Li and F induced by protons from 810 keV to 3200 keV <i>Alessandro Zucchiatti</i>	PB-53
X-ray production cross sections from C and Si up to 1 MeV/amu on Ti, Fe, Zn, Nb, Ru and Ta <i>Alessandro Zucchiatti</i>	PB-54
TANGO control system for electrostatic accelerators <i>Alessandro Zucchiatti</i>	PB-55
Investigation of the accelerating electric fields in laser-induced ion beams <i>Vincenzo Nassisi</i>	PB-56
Plasma production in carbon – based materials <i>Vincenzo Nassisi</i>	PB-57

	Monday	Tuesday	Wednesday	Thursday	Friday
	Opening				
9:00 - 10:00	M.Q. Ren	J. L'Écuyer	J.M.C. Brown	S. Huotari	M. Strobl
	K. Noda		M. Mayer	C.O. Bacri	A. Bosser
	C. Santos	S. Eschbaumer	M. Kokkoris	M. Fonseca	T. Zhang
10:00 - 11:00	R.P. Webb	T. Sajavara	G. Tervagne	V. Alarcon-Diez	Coffee
	Coffee	Coffee	Coffee	Coffee	C. Leynes
11:00 - 12:00	A. Javanainen	C. Pacheco	J. Meersschaut	Z. Siketić	Concluding remarks
	L.C. Feldman	L. Beck	IBT roadmap	T. Seki	Closing
	S. Akhmadaliev	I. Bogdanović Radović		K. Morita	Lunch
12:00 - 13:00	J. Cajzl	A. Subercaze	F. Moisy		
13:00 - 14:00	Lunch	Lunch	Lunch	Lunch	
14:00 - 15:00	C. Weite	V. Malka	Conference outing 13:30 - 22:00	Poster session B	
	P. Steier	M. Klein			
	K. Wilcken	M.V. Mores			
15:00 - 16:00	M. Schiffer	T. Kalvas			
	V. Palonen	K. Mizohata			
	Coffee	Coffee			
16:00 - 17:00	Lab visit	Poster session A		Cruise and conference dinner 16:45 - 24:00	
17:00 - 18:00					