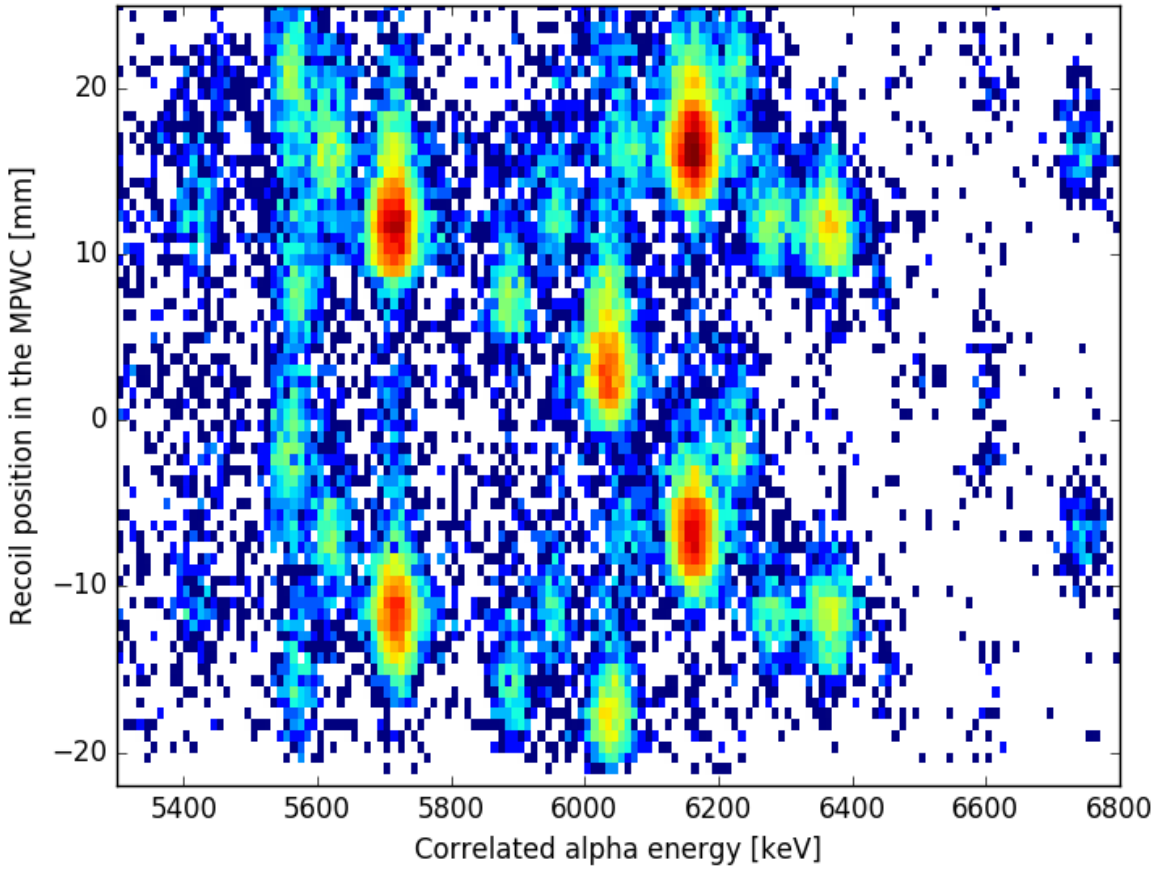
JYFL Accelerator News

Accelerator Laboratory, Department of Physics
University of Jyväskylä, Finland

Volume 24, No. 2 September 2016



Part of a recoil-alpha correlated mass spectrum measured at the focal plane of MARA. The X-axis shows the correlated alpha particle energy while the Y-axis shows the position in the MWPC gas counter from the reactions of ^{78}Kr ion beam on a ^{96}Ru target.

First successes at MARA

The new in-flight mass separator MARA was used in a physics experiment for the first time at the end of August. The MARA focal plane setup is fully digitized and therefore an experiment which was originally accepted for RITU, was performed using MARA. In this experiment a ^{78}Kr beam bombarded ^{96}Ru (see figure) and ^{92}Mo targets to produce very neutron-deficient nuclei formed in heavy-ion fusion evaporation reactions. The experiment lasted for two weeks and was very encouraging for the future planned experimental program. Candidates for two new isotopes were identified and MARA performed impeccably. The experiment was a collaboration between the local Nuclear Spectroscopy group and researchers from the University of Liverpool led by Prof. Robert Page.

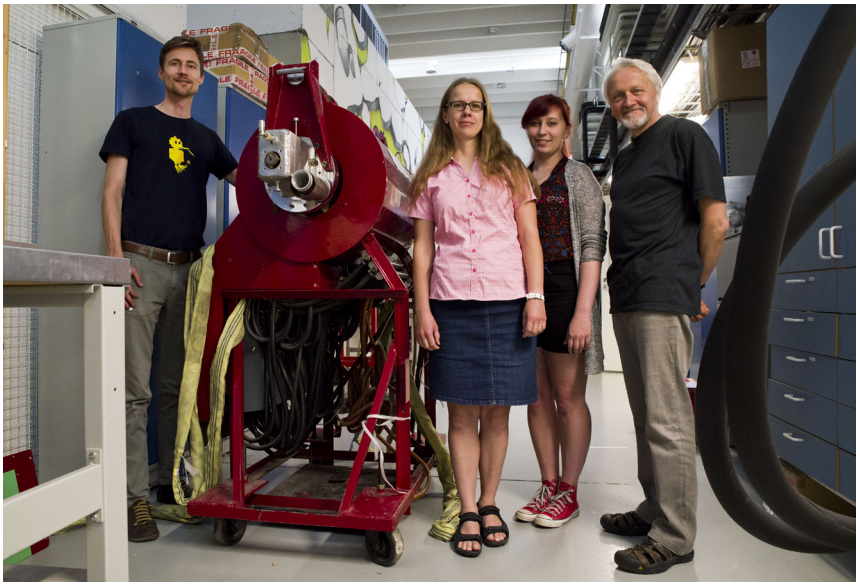
New control system for the K130 cyclotron

The original cyclotron control system, Alcont II, is approaching its end after 25 years of operation. With the help of infrastructure funding (FIRI) from the Academy of Finland, a new control system was ordered in July, 2016. The installation of the Rockwell PlantPAx system will start in the beginning of 2017. Full implementation of the new system will require also local resources for programming and hardware installation. The installation will be done in a way that has minimal interference to the normal accelerator laboratory work.

Comeback of the record-breaking spectrometer

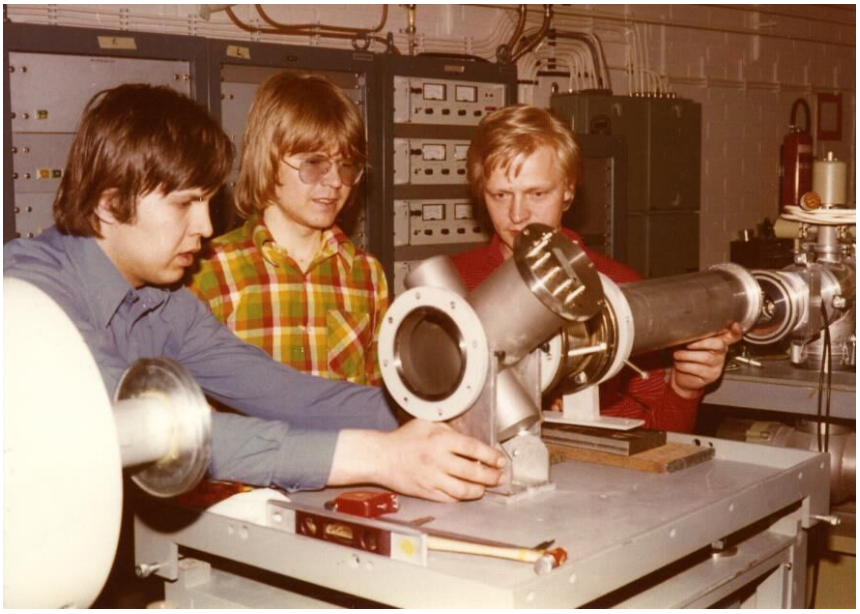
The 1980's were the heydays of conversion electron spectroscopy in Jyväskylä. At that time several magnetic spectrometers were in use at JYFL. The most powerful of them was capable of focusing electrons with energies up to 7-8 MeV [1]. Now this record-breaking spectrometer is being refurbished and by the end of the year it should be back in shape and ready for new challenges at IGISOL-4. The first challenge is a measurement of the tiny branching ratio of the $2^+ \rightarrow 0^+$ transition in the beta-decay of ^{20}F. New proposals are welcome. For more information please contact one of the members of the refurbishing team shown on the photo.

[1] R. Julin et al., Nucl. Instr. Meth. A 270 (1988) 74.



Standing from the left: Oliver S. Kirsebom, Anu Kankainen, Marjut Hukkanen, and Wladyslaw H. Trzaska.

Juha Äystö retired



Juha Äystö (left) together with Rauno Julin and Esko Liukkonen installing beamline elements for the MC20 cyclotron in 1974.

The former long-time head of the Accelerator Laboratory, Professor Juha Äystö, who played a significant role in the development of the JYFL Accelerator Laboratory such that it is now an internationally recognised nuclear physics research facility, retired in June.

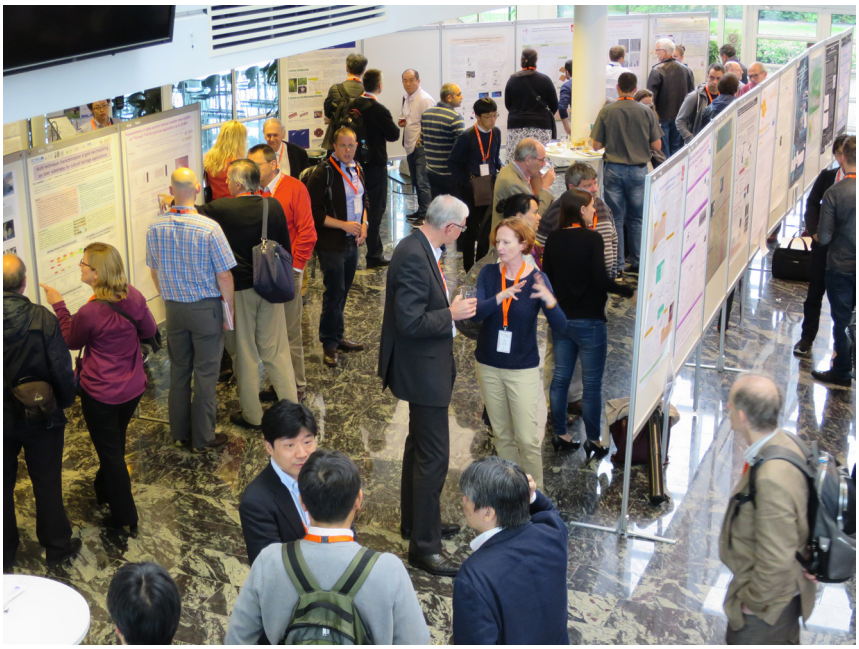
Juha Äystö was nominated as a Professor of the University of Jyväskylä in August 1992. His career as a physicist and researcher is however almost as long as the history of the Department of Physics. He started as a physics major student in 1967, while the Department was established in 1965. He has thus been building up not only the success of the Accelerator Laboratory, but literally the accelerator itself. After obtaining his PhD in 1977, Juha spent 3 years at Lawrence Berkeley Laboratory in the group of Joe Cerny. This exciting period, according to Juha, was very important for his future scientific interests and career. As a researcher and senior researcher of the Academy of Finland he developed the ion guide (IGISOL) technique in the 1980s, from which he received the Lise Meitner Prize in 2010. He acted as the director of the Accelerator Laboratory 1990-97, and as the Head of Department of Physics 1997-99.

Though Juha's work has been important for JYFL, his attitude has always been pronouncedly international. In 1999-2002 he worked as the ISOLDE Physics Group Leader at CERN. Not surprisingly, he has also served in numerous international committees, including NuPECC, which he chaired during 1999-2002. Since 2012 he was the Director of the Helsinki Institute of Physics, an institute through which the Finnish participation to large international research collaborations such as CERN and FAIR is channeled. In this position, driving the momentum of FAIR was in his close interests.

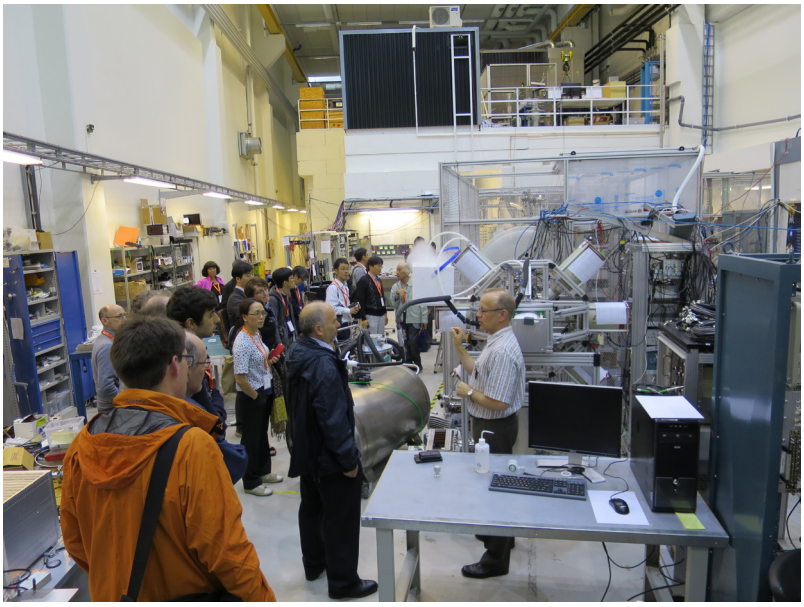
In general, physicists can be divided in two groups. One group has a passion to climb mountains; the other has passion for sailing. Juha definitely belongs to the latter group. Since the lakes in Finland freeze in winter, we are looking forward to welcoming Juha as a Professor Emeritus and hope he will have plenty of time to join us and promote his real passion - physics.

ECAART was organized in Jyväskylä in July

The 12th European Conference on Accelerators in Applied Research and Technology was organized by JYFL in 3-8 July in the Agora building of the University of Jyväskylä. There were in total 141 participants from 31 countries and six industrial exhibitors. Although this particular week was the coldest and rainiest week in the whole summer, not only the scientific program including lab tutorials, presentations and Accelerator Laboratory visit, but also the social program was highly appreciated by the participants. “It was not a heavy task but a joy to organize the conference with such a devoted team we had.” says Timo Sajavaara, chair of ECAART12, “For me the top moment of the conference was the presentation of professor L’Écuyer who was the first author of the first ERDA paper published in 1976.” As one merit of success of the conference, in total 90 manuscripts were submitted for the proceedings to be published in NIMB. The ECAART13 will be held in Split, Croatia in May 2019. Some photos from ECAART12 are available in https://1drv.ms/f/s!AhGsIUTvaqEpqxtDAZ-ryag4wePg



Above: The poster sessions and the industrial exhibition were closely located just outside the lecture hall.



Left: The laboratory tour was organized on Monday evening. Prof. Ari Jokinen is telling about the work done at the IGISOL facility.

Bottom left: The outing afternoon gave the participants a change to try rafting in the Kusaa rapids before the dinner at Varjola, Laukaa.

Bottom: The “father” of ERDA, Jacques L’Écuyer reviewd the history of ERDA.

Next Call for Proposals
Deadline: September 15, 2016

The next deadline for submission of proposals and letters of intent is September 15, 2016. **Proposals should include an abstract/summary**. A justification of the beam time requested, based on cross-sections, detector efficiencies, etc. should be given. If a proposal is the continuation of an existing experimental program at the JYFL Accelerator Laboratory, a summary of the status of the project should be included. Proposals and letters of intent should be sent (preferably as a postscript or pdf file) to the Program Advisory Committee secretary Mikael Sandzelius (address: see below) and include the Proposal Summary Sheet which is available from the JYFL WWW-pages (https://www.jyu.fi/fysiikka/en/research/accelerator/index_html/beamtime.html). You are encouraged to contact anyone in the Contact List at the end of this Newsletter for more information.

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