

Foreword

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The XXXIII European Cyclotron Progress Meeting was organized jointly by the Warsaw and Kraków accelerator centres – Heavy Ion Laboratory of Warsaw University and the Henryk Niewodniczański Institute of Nuclear Physics, respectively. The event was held at both locations, a new feature in the history of ECPMs, from 17 to 21 of September 2002. Also, for the first time, the proceedings are published. The contributions to this issue of *Nukleonika* include invited talks, contributed talks and the transcripts of posters.

The conference gathered almost 100 participants from Europe, USA, Canada and Japan. The reports were devoted not only to the cyclotron techniques, but also to the applications – medical, industrial – as well as to the hot subjects in the nuclear science, namely the use of cyclotrons as radioactive beam sources. Much of the time was devoted to the discussions about novel designs of the highly proficient ion sources and associated transport systems.

Besides the participants representing academic and research laboratories, commercial companies were also present, stressing the increasing role of the applications of

accelerator techniques. ACCEL Instruments GmbH, General Electric Medical Systems and Ion Beam Applications (IBA) presented their offers during permanent exhibitions. Thus, the meeting gave an opportunity to bring together the scientists representing various areas of expertise. Social events were helpful to give an opportunity for the eye-to-eye discussions not only about the achievements, but also problems.

The Meeting, after the welcome address by Prof. P. Węgleński, Rector of the Warsaw University, started with an introductory talk presenting the world trends in cyclotron developments for nuclear physics and applications by E. Baron. The fate of ion beams, produced in more and more sophisticated ion sources (S. Gammino, H. Koivisto, V. Loginov and C. Bieth) was followed to the most difficult to control trajectories at the first orbits by J.-L. Belmont, P. Heikkinen and W. Pelzer. After the acceleration (J. M. Schippers) the beam should be extracted from the machine. W. Kleeven and J. Choiński discussed this problem.



Traditionally, the ECP Meetings are in a large part devoted to the presentation of the status report of various cyclotrons not only in Europe but also in some overseas centers. This was done by S. Brandenburg (paper not available), H. Homeyer, H. J. Gils, H. Jungwirth, G. Dutto, D. Rifuggiato, N. Nešković, M. Humbel. A special treatment was reserved to two Polish cyclotrons: in Warsaw and Kraków. After their presentation by J. Choiński and R. Taraszkiewicz, respectively, these two machines were visited by the Meeting's participants. During these visits a number of questions were asked and answered by cyclotron constructors.

New directions in nuclear physics were opened when the radioactive beam could be accelerated by cyclotrons specially constructed or adapted for this purpose. This field was overviewed by M. Loiselet, and new facilities already working or planned were presented by M. Lieuvin, G. G. Gulbekian, G. Dutto and M. Maggiore.

A number of applications of cyclotrons were presented during the Meeting. The use of heavy ion beams for solid state and material science was reviewed by A. Denker, whereas L. M. Onischenko described a project for track membrane production with a heavy ion cyclotron.

Last but not least – a large part of the Meeting was devoted to medical applications of cyclotrons. Small,

compact cyclotrons for the productions of radiopharmaceuticals labeled with short-lived positron emitters for Positron Emission Tomography (PET) were discussed by A. M. J. Paans. More information on these cyclotrons were presented by K. Helariutta and two participants from the cyclotron industry, Y. Jongen and J. Masiakowski.

Besides diagnostics, another application of accelerators in medicine is their use in hadron therapy. In case of cyclotrons it is limited to the proton therapy, more and more used in oncological treatments and in neutron therapy. These subjects were treated by M. Schillo, J. M. Schippers, M. Maggiore and M. Waligórski.

Finally, H. Homeyer presented a comprehensive review of the scope of the event which attracted the representatives of almost all European cyclotron centers and demonstrated their usefulness for nuclear physics and increasing number of applications.

The organizers of the XXXIII ECPM are thankful for the engagement of the Polish State Committee for Scientific Research, Ministry of Education and Sport, National Atomic Energy Agency and the mentioned above commercial companies for their support which, to a great extent, made the event successful and fruitful.