



FOREWORD

The year 1996 was not an easy one for our Institute. The good scientific output, which we can show with certain pride, seems to defy the laws of economics. There were 214 articles published in international journals, 85 communications presented at conferences, several staff members were invited to give major presentations at international meetings, to chair sessions, to serve on advisory boards etc.

We can note a number of important scientific and/or technical results in each of the main subfields of our activity: in the elementary particle and the cosmic rays physics, in the nuclear physics in a wide energy range, from the lowest, of astrophysical interest through the extreme relativistic heavy ions, in the hot plasma physics, in the materials research and in the various measuring techniques, notably the detector development and the nuclear electronics. Brief resumes of these activities are given in this Report by the Department leaders. Here we can highlight only few examples. Thus we mention: the further predictions of the properties of the heaviest elements, the work which has last year brought the leader of the group, professor Adam Sobiczewski, the prestigious prize of the Polish Science Foundation; the theoretical work on the quantum approach to the classical formula of one body dissipation; the experimental work (within the CERN collaboration) on the deep inelastic scattering of muons, which has brought interesting information on the spin- dependent and spin-independent parton structure of free and bound nucleons; the work on the propagation of strange matter in the atmosphere; the project of a new accelerating structure for the medical accelerator COLINE; the work on the polarization of X-rays emitted in the Plasma-Focus systems; the already highly quoted work on measuring the absolute quantal efficiency of various scintillation materials; the highly promising work on the use of plasma technology for modifications of surfaces of various technically important materials; the patent on a method to measure the dose in the field of mixed $n + \gamma$ radiation; etc.

Our production unit ZdAJ (Establishment for Nuclear Equipment) has continued to serve the medical community with the installation of the COLINE accelerator in the hospital in Lublin and Simax simulator in the Oncological Centre in Łódź.

We note with satisfaction the progress with the $k=160$ cyclotron at the Heavy Ion Laboratory in Warsaw. One of the joint projects with the Warsaw University has been to transfer the isotope separator from Świerk and to put it on line at the cyclotron with the intention to study short lived neutron rich fission products.

Most of the work described throughout this Report has been carried out as joint efforts of various international collaborations. Along with the traditional strong involvement of our groups in several CERN projects we can list here the close contacts with the GSI Darmstadt (notably the pursuit of the heaviest elements and the high energy atomic physics), the traditionally good connections of the nuclear physicists with various French Laboratories (GANIL, Saclay, Orsay, Strasbourg), the strengthened ties with Rossendorf, the technical as well as scientific involvement in several large and medium scale European projects (EUROBALL, WASA, KASCADE, ... etc.). We also note with great satisfaction that one important new European facility has become operational: the superconducting cyclotron AGOR at the KVI in Groningen. We are looking forward to many a good piece of work together in the future, as it has been in the past.

One of the welcome side-effects of the international collaboration is the enrollment of foreign students, notably those from Ukraine, in our Ph.D. programme. This programme, supervised by professor Leszek Łukaszuk, has visibly gained momentum.

There were some setbacks. We have had to limit some of otherwise promising activities because of the financial reasons, we had to reduce personnel and to take some other painful economic measures.

There were two very sad events. We, and with us the world science, have suffered the painful loss of two of our leading, internationally known scientists. On August 26 professor Ryszard Rączka, the Chairman of the Scientific Council of our Institute, has passed away leaving behind his graduate students, his unfinished research in the field theory, and the likewise unfinished reform of our Institute, which he had so strongly advocated.

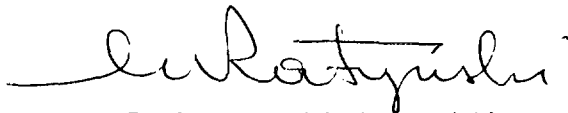
Soon after, on September 6, we were mourning the equally untimely passing away of professor Jerzy Wdowczyk, worldwide known for his research on the cosmic radiation (especially the high energy components). Also in this case death has brutally interrupted a number of ambitious plans, projects, large scale international collaborations.

There were some organisational changes. The (second) term of office of one of us (W.R.) has ended on September 15. Professor Marian Jaskóła, the Deputy Director and the Editor of the many previous Annual Reports, has stepped down on the same date. It is the pleasant duty of both of us to use this opportunity to thank him for the many years of untired work for the good of the Institute.

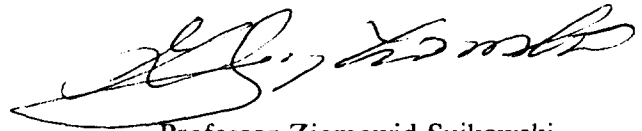
One of the new initiatives at the Institute is the formation of the Department of Training and Consulting. Professor Ludwik Dobrzyński has undertaken the difficult task of creating this Department with the characteristic enthusiasm, zest and vision. We hope that this invigorating activity will provide a much needed connection with the educational system.

One of the lessons we have yet to learn is how to gain financial means from sources other than our main sponsor, the State Committee for Scientific Research. How to earn money, in plain words. We have to learn how to convince our potential industrial partners to use some advanced technologies which we can offer, how to sell our produce and services, etc. Noting that our Institute has an excess of the office and laboratory space in Świerk we have started a campaign to attract high-technology to move in. One possible measure to promote this process is to create a Special Economic Zone in Świerk, offering tax privileges etc. to those who would settle there.

May the year 1997 mark the turning point, after which the staff of our Institute will stop shrinking in numbers, will gain young blood and achieve new scientific successes.



Professor Wojciech Ratyński



Professor Ziemowid Sujkowski