TRIBUTE TO KRZYSZTOF RYBICKI
(1938-2003)

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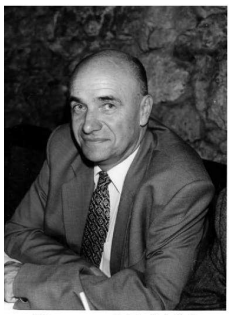

Krzysztof Rybicki

ABSTRACT

Krzysztof Rybicki, a longstanding member of the International Advisory Committee of the Physics in Collision conference, passed away after a short illness on March 27 at the age of 65. He was a Professor of physics in the Institute of Nuclear Physics in Cracow, Head of Leptonic Interactions Department and Chairman of the INP Scientific Council. On 1.01. 2000 he became a member of the CERN Scientific Policy Committee and, in 2002, member of the High Energy Particle Physics Board of the European Physical Society. Until his very last days he was an active member of the high energy physics community; his unexpected death was a shock for all of us. We will miss his friendship, wisdom and guidance.

We try to present him as a scientist, organizer, teacher, colleague...

[0]presented by M. Turała

1 Scientist

After graduating from Cracow's Jagellonian University in 1960, Krzysztof Rybicki started his research at the Emulsion Group of the Institute of Nuclear Research, Cracow branch, under the leadership of Prof. Marian Mięsowicz. He quickly completed all the steps of his academic career. In 1964, he defended his PhD thesis on "Meson production in the central collisions of heavy primaries of cosmic radiation" and, six years later, he received his habilitation. In 1979, he became Professor at the Institute of Nuclear Physics. Since 1972, he was the leader of the Cracow electronic-detectors group, which later grew to a department counting about 30 people. In 1973 he started a very fruitful collaboration with CERN-Munich team, which evolved into the CERN-Cracow-Munich group and finally into the Amsterdam-CERN-Cracow-Munich-Oxford-Rutherford (ACCMOR) collaboration, which performed at CERN three successive experiments: WA3, NA11 and NA32. It was also the first of his team's many international collaborations working on experiments at CERN (NA36, DELPHI, Atlas, LHCb), DESY (LENA, Crystal Ball, H1) and KEK (Belle).

The scientific interests of Krzysztof were very broad. First, his works dealt with cosmic-ray interactions in emulsion experiments. His results published in the 60s included pioneering studies of pure fragmentation of high-energy nuclei and the first measurement of the elastic proton-nucleus cross section in TeV range. In 1972 he published, together with O. Czyżewski[1] a paper on multiplicity distributions of charged secondary particles in hadronic collisions [1]. Using existing data they made the observation that the ratio $< n > /D \approx 2$ and described all the data with a universal parametrization, called Czyżewski-Rybicki formula. This work, which is still being cited, contributed to the formulation of the famous KNO scaling.

Hadron spectroscopy was Krzysztof's real passion. It dates back to 1973 when he started to work on partial wave analysis for $\pi^+\pi^-$ and K^+K^- systems using polarized-target data of the CERN-Cracow-Munich group. He was one of the main authors of a model independent partial wave analysis of the $\pi^+\pi^-$ system ([2]), which provided the first information on $a_1(1260)$ exchange in the reaction dominated by OPE. He continued these studies until his last days, recently in collaboration with theoreticians from INP. Their works contributed to a revival of $\sigma(600)$ meson [3].

Heavy flavors were another topic actively studied by Krzysztof. S. Kwan[2] thus summarized his studies in ACCMOR: *"Through his effort, ACCMOR has published papers on double charm correlation, absolute branching fractions, D^{+*} and Λ_c*

[1] Oleg Czyżewski (1930-1971) was an associate professor at INP

[2] former member of ACCMOR collaboration, now at Fermilab

spin studies (first in this field) and Λ *polarization just to name a few."* [4].

K. Rybicki, although busy with many tasks, never gave up physics analysis. When other collaborators went to new projects, he continued careful studies and, in the words of B. Hyams[3], he *"found physics where others failed to look"*.

2 Organizer, teacher and colleague

Krzysztof Rybicki was engaged in many organizational ventures. The most important of these was the development of a "filmless" detector HEP group at INP, as suggested to him by Prof. Mięsowicz at the beginning of 70s, and which he did together with one of us (MT). In those times of Poland's political isolation and technology gap, many Polish physicists looked with some skepticism to this idea; nevertheless, a few years later, spark, proportional and drift chambers produced in Cracow were used in several ACCMOR experiments and at JINR Dubna. Since that time hardware became an important contribution of the Cracow group to many experiments, helping us to participate in the most exciting projects in high energy physics. Very soon this new style of experimental work in Poland came to be followed by other Polish groups.

Krzysztof recognized the importance of hosting international meetings in Poland. He was very active part both in organization and in the course of talks and discussions of many of such meetings. C. Damerell[4] thus recalled the ACCMOR meeting in Cracow at early 80s, when the Rutherford group presented for the first time the idea of CCD detectors: *"...the Rutherford group was most encouraged by supportive comments from Krzysztof and other of our hosts in Cracow.... In the LHC/Linear Collider era, virtually all vertex detectors will be pixel-based. In a real sense, this world-wide development was nurtured in Cracow under Krzysztof's friendly guidance."* In 1995, he organized in Cracow the 15th edition of Physics in Collision conference. The fact that many of the participants came back soon to Cracow as tourists was the source of additional satisfaction.

K. Rybicki paid a great attention to the development of young physicists. For many years, he lectured at the Jagellonian University; as a result, most of his collaborators were his former diploma or Ph.D students. He was a supervisor of 13 Ph.D theses and the initiator of 9 habilitations in his group. As a leader of a big team he was an unquestionable authority. His broad knowledge, deep insight, excellent intuition, caused that we relied on his advices and judgment.

[3]leader of the CERN group in ACCMOR

[4]leader of the Rutherford group in ACCMOR

Krzysztof's talents were impressive not only in physics: an erudite, with an excellent knowledge of history and literature, able to converse in Latin, he was also an active tourist, familiar with almost all of Polish kayak and mountain routes. No wonder that his colleagues consulted him not only in physics.

Krzysztof Rybicki lived and worked in difficult times, yet his life can be an example of constructive work regardless of external circumstances. His motto "Nulla dies sine linea" helped him realize his goals even if he had to proceed by very small steps. He always considered his duties in a perspective broader than just his personal career. His efforts contributed to the development of Polish experimental particle physics and helped to keep it free from political pressures. It is no doubt that his deep faith, which matured during his longlasting friendship with Karol Wojtyła (the present John Paul II) played an important role in his attitude and motivations.

3 Acknowledgments

We would like to thank all colleagues and friends who sent us and Krzysztof's family their warm words of support. Particular thanks are due to the organisers of the Physics in Collision conference for an opportunity to give a memorial to Krzysztof, and to those who provided us with their reminiscences.

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