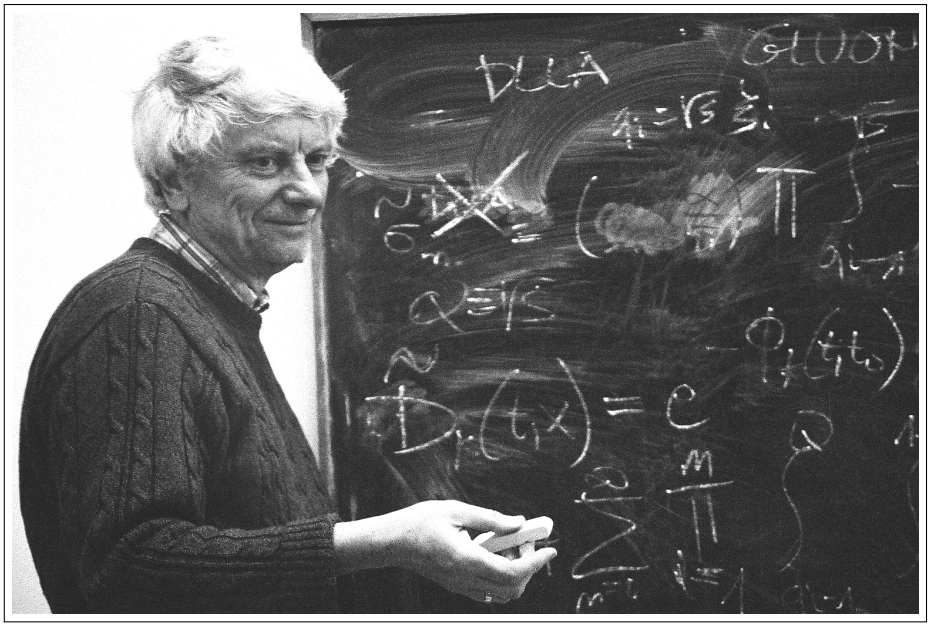

Stanisław Jadach
(1947–2023)

Professor Stanisław Jadach graduated in physics from the Jagiellonian University in Kraków. There he defended his Ph.D. and received his habilitation. He worked at the University until 1992, when he moved to the Institute of Nuclear Physics Polish Academy of Sciences and worked until his passing in 2023. He received the title of professor in 1994. During this time, he held numerous fellowships (6–12 months) at such centers as CERN (Geneva), DESY Hamburg, DESY Zeuthen, MPI Munich, UTK Knoxville USA, CEA Saclay, and Rutherford Laboratory (Chilton, England).

Stanisław Jadach became famous for his innovative use of Monte Carlo methods for precision calculations for particle physics experiments, in particular for the LEP experiments at the CERN laboratory in Geneva. Before the time of LEP, all radiative corrections were computed using fixed-order calculations of first order which was insufficient for the precision of this experiment. In 1987 Professor Jadach presented the solution to this problem when he proposed a new way to perform all-order QED calculation for

any number of radiated photons based on a classical 1961 work of Yennie, Frautschi, and Suura. This work was further developed in 1989 to the level of differential cross sections and later in 1999 to the level of spin-amplitudes, giving foundations for a series of later works and computer programs for LEP experiments. Most of the data analysis performed by LEP experiments between 1989 and 2002 was based on these novel calculations of Professor Jadach and his collaborators. The most pronounced were calculations of: luminosity in the Bhabha process, lepton- and quark-pair production, decay of tau leptons, or production and decay of pairs of W and Z bosons. Another important contribution to LEP physics provided by Professor Jadach was calculation of spin correlation effects on top of QED radiative corrections in the production and decay of two tau leptons.

After the conclusion of the LEP experiment, Professor Jadach started to work on calculations for the LHC. He developed new parton shower algorithms and introduced a new method of matching QCD next-to-leading order matrix elements with parton showers. In recent years, he started to work again on the physics of electron–positron machines, especially in the context of future circular collider in CERN (FCC-ee), where he was able to contribute his expertise in QED and electroweak calculations.

Professor Stanisław Jadach received the most prestigious Polish awards in the field of physics: the Maria Skłodowska-Curie award (from Polish Academy of Sciences), the Marian Mięsowicz award (from the Polish Academy of Arts and Sciences), and the award of the Polish Minister of Higher Education and Science for overall scientific achievements. He was a corresponding member of the Polish Academy of Arts and Sciences.

Among all, Professor Jadach was a great man who was very modest, demanding of himself and understanding of others. His professional knowledge was impressive. He never refused requests and he always had time for discussion.

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