

Biography

Bilenky Samoil

Samoil Bilenky was born on May 23rd 1928 in Zmerinka, a town of the Ukrainian Republic (USSR). Finished the Liceum in 1946 and won the competition to one of the best Moscow Institute, the MIPI (Moscow Engineering and Physics Institute) from which he graduated "cum laude" in 1952.

His working life started exactly the same year in the Institute for Nuclear Problems (Dubna) which became later the Joint Institute for Nuclear Research.

The first three years was working in the research group led by academician I.Pomeranchuk. At the same time, Bilenky was working in different research groups, studying problems of elementary particle physics. Among these here are the results in the following three cycles of his investigations.

Polarization effects in particle collisions. The most significant are the papers of this cycle in which the general connection between polarization effects and internal parities of particles was discovered. In these papers the method of determination of parities of strange particles was pointed out. The proposed method was used in Berkeley and CERN experiments. Bilenky's papers on the connection between parities and polarization effects initiated in sixtieth the development of the technique of polarized proton targets.

Together with his colleagues in Dubna I proposed a method of direct reconstruction of the matrices of pion-nucleon and nucleon-nucleon scattering. This method was used in experiments made in Dubna, Saclay, PSI and TRIUMF.

Neutral current effects. Investigation of P-violating effects in deep inelastic scattering of polarized muons by nucleons. Result initiated the experimental study of the problem in CERN.

Physics of massive and mixed neutrinos. The problem of neutrino masses and mixing is the most important problem of neutrino physics.

Together with B.Pontecorvo he started to investigate this problem in 1975, several years before this problem took attention of many physicists. Together, they developed the general theory of neutrino mixing and neutrino oscillations. Various experiments on search for neutrino oscillations were proposed and considered in details. Such experiments are being conducted in all neutrino laboratories all over the world with

neutrinos from accelerators, nuclear reactors, cosmic rays and the sun. Their investigations opened new direction in the study of neutrino properties, which today is one of the major way of searching for new physics.

Some results were summarized in three well known review papers published in 1977 in *Physics Reports* (together with B.Pontecorvo) and in 1987 in *Review of Modern Physics* (together with S.Petcov).

Within 30 years he has been reading lectures on quantum field theory, on the physics of electroweak interaction, on quantum mechanics and on scattering theory in the Dubna Department of the Moscow State University. Many of his students (D.Bardin, S.Petcov, N.Shumeiko, V.Semikoz and others) became very well known scientists.

He has published more than 200 scientific papers and four books:

- 1 .Introduction to Feynman diagrams (Moscow Atomizdat 1970 in russian; Pergamon Press 1971 in English),
2. Introduction to the physics of electroweak interactions (Moscow Energoatomizdat 1980 in russian; Pergamon Press 1981 in english),
3. Introduction to Feynman diagrams and physics of electroweak interactions (Moscow Energoatomizdat 1990 in Russian; Editions Frontiers 1994 in English),
4. Introduction to scattering theory (1985, Moscow University in Russian).

Bilenky gave courses of lectures on neutrino physics, electroweak theory and quantum field theory at many International Schools: Catovice, Poland (1989), Trogir, Yugoslavia (1990), Lisbon, Portugal (1991), Tenerife, Spain (1992), Capri, Italy (1993, 1994), Benasque, Spain (1996), CERN European School of High-Energy Physics(Alushta USSR (1991), Zacobane, Poland (1993), Papernicia Slovakia (1999) and others.

He lectured courses on the standard theory of electroweak interaction and neutrino physics for PhD students and graduated students at Karlov University Prague (1983 and 1986), at Milano University (1989), at Vienna University (1990,1996), at University of Valencia (1992), at International Center for Theoretical Physics in Trieste (1992), at Technion (1997) in Helsinki University (2000) and other Universities. He was Schrodinger-Gestprofessor of 1990 in Vienna University.

Three times he was awarded with the first prize of the Joint Institute for Nuclear Research: for "The theory of reactions on polarized target" (1966), for "The theory of neutrino oscillations" (1977), for the contribution to the " Discovery of the effect of interference between weak and electromagnetic interactions in scattering of muons on carbon nuclei" (1983). In 2006 he received the second JINR prize for the investigation of neutrino oscillations.

In 1980 awarded with the Honorable Diploma on the 225 Anniversary of the Moscow State University. In 1986 awarded with the Medal of the First Degree of the

Faculty of Physics and Mathematics of Karlov University in Prague. In 1996 on the occasion of 40 years of JINR (Dubna) awarded with the Russian state medal " For distinguished service to the State"

In 1991-1992 spend sabbatical year in Valencia University. In 1992 he was invited to Torino University. Worked in Torino University from October 1992 till July 1995 as a professor, leader of the group. In 1996 during 4 months he was visiting professor at SISSA (Trieste). In 1996 awarded honorable Lady Davis Visiting Professorship in Technion (Israel) for 1996-97 Academic Year.