Universität Karlsruhe (TH)

Julius Wess lecturing at the SUSY07 conference on July 25th, 2007 in Karlsruhe

It is with great sadness that we learned about the sudden death of Julius Wess on August, 8th, 2007. Only two weeks ago Julius still gave a special colloquium at the University of Karlsruhe on how he and Bruno Zumino introduced Supersymmetry into particle physics in 1973. Julius was then professor in Karlsruhe and Bruno held a position at CERN. This special colloquium, entitled "From Symmetry to Supersymmetry" was part of the PreSUSY07 school of the 15th International conference on Supersymmetry and the Unification of Fundamental Interactions, which was held in Karlsruhe from 26.7.2007-1.8.2007. Julius gave also the opening lecture at this SUSY07 conference and participated actively in his charming manner.
Julius Wess was one of the most renowned and successful theoretical particle physicists as exemplified by important awards: he was recipient of the Max Planck medal, the Wigner medal , the Gottfried Wilhelm Leibniz Prize. He also received an honorary Ph.D. from the Humboldt Universität in Berlin.

Wess was born in 1934 in Austria and received his Ph.D. in 1957 in Vienna where he was a student of Hans Thirring. His Ph.D. examiner was the famous quantum mechanics physicist, Erwin Schrödinger. His scientific career brought him first to CERN. In 1966 he became associate professor at the Courant Institute of the Univerisity of New York, in 1968 full professor at the Universität Karlsruhe (TH). In 1990 he left Karlsruhe to become director of the Max-Planck-Institut für Physik (Werner-Heisenberg-Institut) in Munich and professor at the Ludwig-Maximilians-Universität. After his retirement he worked at DESY in Hamburg.

His most famous publication with Bruno Zumino on "Supergauge Transformations in four Dimensions" received more than 1000 citations. This now known as Wess-Zumino model introduced Supersymmetry into particle physics. Only later the tremendous consequences of this model were discovered. It connects the strong and electroweak forces with gravity and requires for its realization a doubling of the number of elementary particles of the Standard Model. This mirror world has not been discovered, presumably because the superpartners of the known elementary particles are too heavy to be produced at present accelerators. However, the quantum corrections of these superpartners can be calculated and with the precision measurements of the strength of the different forces at the electron-positron collider LEP it became clear that Einstein's dream of the unification of all forces can be realized in nature only if this mirror world of particles exists. Furthermore, the electroweak symmetry breaking, thought to be responsible for the generation of masses in the universe, occurs naturally in Supersymmetry and leads to the prediction of a light Higgs boson, as indeed required by the electroweak precision data from present colliders. But even more spectacular, Supersymmetry provides a strong candidate for the elusive dark matter in our universe. This weakly interacting - and therefore invisible - matter is about five times more abundant than the visible matter, as is known from its gravitational effects in the universe.

A definite test about the realization of Supersymmetry in nature is expected from the Large Hadron Collider at CERN, which is expected to start data taking in 2008. Here one hopes to discover the predicted superpartners of the known elementary particles of the Standard Model. It is very saddening that Julius Wess died before he could have observed the ultimate test and possible proof of his revolutionary theory. We regret to have lost someone who not only was an eminent physicist, but also a friend and colleague to many of us.