

't Hooft and Veltman Receive 1999 Nobel Prize in Physics

The Royal Swedish Academy of Sciences has awarded the 1999 Nobel Prize in Physics jointly to GERARDUS 't HOOFT and MARTINUS J. G. VELTMAN. The two were honored "for elucidating the quantum structure of electroweak interactions in physics." The prize, which carries a cash award of 7,900,000 Swedish crowns (about \$1,000,000), will be presented December 10, 1999, in Stockholm.

The theoretical foundation for the standard model of particle physics was at first incomplete mathematically, and in particular it was unclear whether the theory could be used at all for explicit calculations of physical quantities. 't Hooft and Veltman have been awarded the Nobel Prize for placing this theory on a firmer mathematical foundation. Their work has given researchers a well-functioning theoretical machine which can be used for, among other things, predicting the properties of new particles. In particular, their method was used to calculate the mass of the top quark. This quark was observed directly for the first time in 1995 at Fermilab, and the theoretical predictions agreed with the experimental evidence.

Gerardus 't Hooft was born in 1946 in Den Helder, The Netherlands. He received his doctoral degree in physics in 1972 at the University of Utrecht, and he has been a professor of physics there since 1977. He received the Dannie Heineman Prize of the American Physical Society (1979), the Wolf Prize in Physics (1981), and the Franklin Medal of the Franklin Institute (1995). He was elected as a foreign associate of the U.S. National Academy of Sciences in 1984 and has been a member of the Dutch Academy of Sciences since 1982.

Martinus J. G. Veltman was born in 1931 in the Netherlands. He received his doctoral degree in physics in 1963 at the University of Utrecht and was a professor of physics there from 1966 to 1981. He then moved to the University of Michigan, Ann Arbor, where he is now John D. MacArthur Professor of Physics, emeritus. He resides in Bilthoven, The Netherlands. Veltman received the 1993 High Energy and Particle Physics Prize from the European Physical Society and the 1997 Dirac Medal from the International Center for Theoretical Physics. He has been a member of the Dutch Academy of Sciences since 1981.

—Based on information from the
Royal Swedish Academy of Sciences



Gerardus 't Hooft



Martinus J. G. Veltman