

# Vladmir Iosifovich Veksler Biography

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# Biography

Veksler was born in Zhitomir, Ukraine, on March 4, 1907. He graduated from the Moscow Institute of Energetics in 1931. He was employed at the All-Union Electrotechnical Institute from 1930 to 1936 and at the Institute of Physics of the U.S.S.R. from 1936 to 1956. In the latter year, he moved to the Joint Institute of Nuclear Research.

Most of Veksler's research involved nuclear and particle physics. He studied the use of Geiger-Müller proportional counters to detect the effects of x-rays and cosmic rays on matter. His most famous accomplishment was the development of the theory of phase stability of particles.

When particles are accelerated in a cyclotron, they gain mass. At low velocities, this mass increase is relatively insignificant. But at velocities close to the speed of light--common in most cyclotrons--mass increase becomes so great that particles slow down and fall "out of synch" with the electrical field that accelerates them.

In 1944, Veksler demonstrated that one way to deal with this problem was to slow down the frequency of the accelerating electrical field. When that happens, particles are able to keep in step with the electrical field and continue to gain energy, even as they gain mass. This principle, developed independently at about the same time by Edwin McMillan, led to the development of a new type of cyclotron known as the synchrocyclotron, the frequency-modulated (FM) cyclotron or, in the then Soviet Union, the phasotron.

For his contribution to the development of particle accelerators, Veksler shared the Atoms for Peace Award with McMillan in 1963. He died in Moscow on September 23, 1966.