

## Joseph Lehner

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Essay by Farrah Rahman

Joseph Lehner was born in New York City on October 29, 1912. He was a gifted and multi-talented child, who was on the debate team, built his own radio, and helped his brother with his law office before graduating high school at only 15 years old. In college, though, he focused on mathematics and science, earning his bachelor's in Mathematics from NYU. During his undergraduate study, he also took courses at the University of Pennsylvania, which is where he met his lifelong wife Mary Beluch as well as mathematician Hans Rademacher, under whom Lehner would complete his Masters and PhD at the University of Pennsylvania.

After graduation, Lehner would work in and out of academia. His first role was a brief stint as an instructor at Cornell University, which he soon left to work on the Manhattan Project, where his work on time and space-dependent partial differential equations helped create a more efficient process of producing Uranium-235. After the war, Joseph Lehner taught at the University of Pennsylvania before working at Los Alamos National Laboratory, where he continued to work on the Manhattan Project with a focus on diffusion cascades and neutron transport. In 1957, he became a professor at Michigan State, from which he switched to the University of Maryland, finally becoming a professor at Carnegie Mellon, where he would continue to work for the rest of his career.

Throughout his career, Joseph Lehner's primary areas of interest were number theory and automorphic forms for discontinuous groups, the latter being a field he helped pioneer, with his book on the subject, *A Short Course in Automorphic Forms*, becoming a classic introductory text in universities for decades after its publication. His interest in number theory was something he shared with Ramanujan-- in 1950, he even published a proof of Ramanujan's conjecture concerning the congruence modulo of the number of partitions of powers of eleven. Ramanujan had proved it only for 111 and 112-- Lehner was the first to prove it at 113.

Lehner died on August 5, 2013 in Pennsylvania, leaving behind one daughter, Zheindl nee Janet.