Biographical Encyclopedia of Astronomers

Lanczos, Cornelius

Born Székesfehérvár, (Hungary), 2 February 1893

Died Budapest, Hungary, 25 June 1974

Hungarian mathematical physicist Cornelius Lanczos explored some of the consequences of Albert Einstein's general theory of relativity pertinent to cosmology, for instance, how the variables expressing measurable quantities must connect across discontinuities in curved space

Born Kornel Löwy in Hungary, Lanczos changed his name to conceal his German origins. His father, Carolus Löwy, a lawyer, provided for his broad education. He attended a Jewish elementary school, learning several foreign languages, and the local gymnasium, run by the Catholic Cistercians. Graduating from the gymnasium in 1910, Lanczos entered the University of Budapest in the fall of that year. His teachers in physics, Löránd (Roland) Eötvös, and in mathematics, Lipot (Leopold) Fejér, inspired him to excel in these fields.

Upon graduation in 1915, Lanczos received an appointment as an assistant at the Budapest University of Technology, where he worked on relativity theory, dedicating his dissertation, with permission, to Einstein. After receiving his doctorate in 1921, he left Hungary because of its increasing hostility to Jews and took a position as an assistant to the physicist Franz Himstadt at the University of Freiburg in Germany

In 1924, Lanczos moved to Frankfurt am Main, becoming a colleague of Paul Epstein. During 1928/1929, he was Einstein's assistant in Berlin, returning to Frankfurt at the end of that year. During the 1920s, Lanczos joined the German Physical Society and published papers on the general theory of relativity, on a simplified coordinate system for Einstein's gravitational equations, on the expected red shift in a De Sitter universe, and on cosmology. In this period, he independently discovered the mathematical equivalence of Werner Heisenberg's discrete matrix representation and Erwin Schrödinger's continuous wave representation of the formal expressions of quantum mechanics expressible as integral equations

In 1931, Lanczos spent a year as a visiting professor at Purdue University in Lafayette, Indiana, USA, returning briefly to Germany during 1932. Recognizing that overt discrimination made continued work there impossible for a person of Jewish origin, he returned to Purdue as a professor that same year. Lanczos' work focused on mathematical physics and numerical analysis, and he had an extensive correspondence with Einstein. Extending his interest into relativity, he published several fundamental papers in this area

During 1944, Lanczos took a position at Boeing Aircraft Company where he worked on applications of mathematics to aircraft design, developing numerical methods to solve certain problems. He resigned his position at Purdue in 1946 to take a permanent position at Boeing, but in 1949 he moved to the Institute for Numerical Analysis of the National Bureau of Standards in Los Angeles, California, working on digital computers and numerical methods.

For political reasons connected with the investigations of Joseph R. McCarthy in the United States Senate, Lanczos became uncomfortable in the USA and was delighted to receive an offer from Schrödinger to head the Theoretical Physics Department at the Dublin Institute for Advanced Study in Ireland, which he accepted in 1952. (He also held visiting professorships at North Carolina State University, Raleigh, North Carolina, USA, and received the Chauvenet Prize of the Mathematical Association of America during the 1960s.) At the Dublin Institute, Lanczos happily returned to science and over the next few years he published more than a hundred papers on topics primarily related to the theory of relativity. Late in life he returned to Hungary.

Katherine Haramundanis

Alternate name

Löwy Kornel

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