

Subramanyan Chandrasekhar Biography

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Biography

Subrahmanyan Chandrasekhar was born on October 19, 1910, at Lahore, India (now Pakistan). He graduated from Madras University in 1930, received his Ph.D. at Cambridge University in 1933, and came to the United States three years later. He joined the faculty of the University of Chicago and worked at the Yerkes Observatory in Wisconsin. He became a naturalized citizen in 1953.

Chandrasekhar is considered one of the greatest astronomers of the twentieth century. His research interests were wide-ranging, and he approached each problem he tackled with brilliant innovation. His papers on stellar evolution, radiative transfer (which describes the interaction of light with the matter it is passing through), and dynamical systems (e.g., the motion of stars in a cluster) are fundamental reading for each topic.

One significant topic of interest for Chandrasekhar was white dwarfs--stars with a great deal of mass packed into a very small area. These objects have very unusual properties, and it was Chandrasekhar who applied Albert Einstein's theory of relativity to explain their nature. According to Chandrasekhar, the greater the mass of a white dwarf, the smaller it will be compressed by its gravity. He calculated models for white dwarfs of different masses and determined there was a definite limit to the amount of mass a white dwarf could have. Any dwarf that had more than 1.4 times the mass of the Sun could not exist because it would be crushed into nothing by its own gravity. This barrier became known as the Chandrasekhar limit.

Countless stars are many times more massive than the Sun, and many of them have undoubtedly become white dwarfs at the conclusion of their lives. How could they possibly survive? Chandrasekhar suggested that such stars could only stabilize as white dwarfs by shedding their excess mass during their collapse in an enormous explosion called a supernova. His theory helped explain the mystery of a perplexing type of supernova that had been studied by Fritz Zwicky.

In 1983, Chandrasekhar was awarded a well-earned Nobel prize for Physics, along with his colleague William Fowler, for their work on stellar evolution.

Chandrasekhar died on August 21, 1995, shortly after the last of his ten books was published.

Chandrasekhar died after suffering a heart attack, on August 21, 1995, at the University of Chicago's Bernard Mitchell Hospital, Chicago, Illinois.