

Birth of Subrahmanyan Chandrasekhar: This Day in History – Oct 19

On 19 October 1910, Indian American astrophysicist Subrahmanyan Chandrasekhar was born in Lahore, British India. He received the **Nobel Prize** for Physics in 1983 along with William A Fowler. Read more about his life and contributions, which is a part of science and technology segment of the the UPSC Syllabus

Biography of Subrahmanyan Chandrasekhar

- S Chandrasekhar was born to a Tamil family in Lahore. His parents were Chandrasekhara Subrahmanya Ayyar and Sitalakshmi Balakrishnan. Nobel laureate Sir C V Raman was his paternal uncle.
- Chandrasekhar was home-tutored till the age of 12. After that, he attended high school in Madras. For his bachelor's degree, he went to Presidency College, Madras and secured a degree in Physics.
- After that, he acquired a government scholarship to go to the University of Cambridge. He attended Trinity College, Cambridge.
- In 1937, he started work as an assistant professor at the University of Chicago. His entire professional life was spent there where he acquired emeritus status in 1985.
- He worked on a variety of topics like stellar structure, stellar dynamics, white dwarfs, radiative transfer, stochastic process, the quantum theory of the hydrogen anion, equilibrium and the stability of ellipsoidal figures of equilibrium, turbulence, hydrodynamic and hydromagnetic stability, general relativity, theory of colliding gravitational waves, and the mathematical theory of black holes.
- He is most famous for what is called the **Chandrasekhar Limit**. While at Cambridge, he outlined a theoretical model that explained the structure of white dwarf which considered the relativistic variation of mass with velocities of electrons that comprise their degenerate matter.
- He proved that the mass of a white dwarf would not be greater than 1.44 times that of the Sun – this limit is called the Chandrasekhar Limit.
- In 1983, he received the Nobel Prize in Physics for his work on the physical processes important to the structure and evolution of stars.
- He has received numerous other awards. NASA named one of its 4 great observatories after the scientist, called Chandra X-ray Observatory.
- In 1944, he was elected a Fellow of the Royal Society.
- He has received the Bruce Medal, Gold Medal of the Royal Astronomical Society, Rumford Prize, National Medal of Science (USA), Copley Medal, Henry Draper Medal, Humboldt Prize, etc.
- In 1968, Chandrasekhar received the Padma Vibhushan in 1968.

- The Chandrasekhar Number is named after him. An asteroid 1959 Chandra is named after him. The Himalayan Chandra Telescope is also named after him.
- He died of a heart attack in 1995 in Chicago.

Legacy of S Chandrasekhar

Chandrasekhar's most notable work is on the astrophysical Chandrasekhar limit. The limit gives the maximum mass of a white dwarf star, ~ 1.44 solar masses, or equivalently, the minimum mass that must be exceeded for a star to collapse into a neutron star or black hole (following a supernova). The limit was first calculated by Chandrasekhar in 1930 during his maiden voyage from India to Cambridge, England for his graduate studies.

On 19 October 2017, Google showed a Google Doodle in 28 countries honouring Chandrasekhar's 107th birthday and the Chandrasekhar limit