



## SCIENTISTS OF INDIA- PROF. VENKATARAMAN RADHAKRISHNAN

Many science fiction movies like E.T., Interstellar have been made, showing aspects like aliens, blackholes, other planets etc. But what we don't know about is those people who have worked on these things in real life which inspires these motion pictures. One of the most eminent scientists of India, Prof. V Radhakrishnan is one these scientists.

### VENKATARAMAN RADHAKRISHNAN

V. Radhakrishnan was a respected scientist of astrophysics and radio astronomy who made immense contributions in the field of astronomy and physics. He is the son of Nobel Laureate C.V. Raman and Lokasundari Ammal and the cousin of Nobel Laureate Subramanyam Chandrashekar. He made a name for himself domestically and internationally.



*Prof. V. Ramakrishnan*



*The Hubble Telescope's picture of the Monkey Head Nebula*



*Radio antennas*

### WHAT ARE ASTROPHYSICS AND RADIO ASTRONOMY?

Astrophysics is a form of space science which helps in explaining the nature of celestial bodies like planets, stars through theories of physics and chemistry. Radio astronomy is a field of astronomy that studies space objects through their radio frequency. Every space matter emits some type of frequency which is converted into radio signals by large antennas that help unravel the universe.

# LIFE AND CAREER

## EDUCATION

He was born on 18 May, 1929. V. Radhakrishnan studied in a school in Chennai and then obtained his Bachelors in Physics from Mysore University in 1950. Later on, in his life, he was awarded an honorary doctorate by the Amsterdam University in 1996.

## DID YOU KNOW?

Prof. Radhakrishnan was very passionate about boats and aircrafts. He made many design contributions in these fields and these have been acknowledged by ISRO and Ministry of Defence.

## CAREER

Venkataraman Radhakrishnan started his career at Indian Institute of Science, Bangalore as a research scholar. After this in 1955, he joined the Chalmers Institute of Science in Sweden and due to this learnt Swedish! He became a senior research fellow at California Institute of Technology (Caltech). He joined the Commonwealth Scientific and Industrial Research Organisation division of Radio Physics in Australia in 1965. He worked in France as well from 1971-72. Professor Radhakrishnan was contacted by the Raman Research Institute to help it after C.V Raman's death. Thus, the professor came back to India in 1972 and became the Director of RRI. Under him, the institute achieved new achievements. He stepped down from the position of Director in 1994 but continued as the Professor Emeritus till his death in 2011.



*The Raman Research Institute*

## SCIENTIFIC CONTRIBUTION

Professor Radhakrishnan in 1956 carried out experiments to understand the neutral atomic hydrogen in space the Milky Way and in 1958, he worked on the divergence of radio waves. The professor and his team were the first to calculate Jupiter's magnetic field and find out the cause for its stationary place. Venkataraman Radhakrishnan is credited for his work on pulsars, interstellar clouds, galaxy structures. His work on pulsars helped in proving the fact that they are magnetically charged.

He was involved with the Indian Institute of Astrophysics in the construction and usage of two low-frequency radio observatories at Karnataka and Mauritius. Prof. Radhakrishnan also helped build the Ooty radio telescope and the Giant Metrewave Radio Telescope in Pune. He also made breakthrough with liquid crystals and wrote numerous research papers in journals.



*Ooty Radio Telescope*

## AWARDS AND MEMBERSHIPS

### AWARDS

Professor Radhakrishnan received the Gujarmal Modi Award in 2003, the MP Birla Memorial Award in 2005 and the Sir Asutosh Mookerji Memorial Award.



*The Royal Swedish Academy of Sciences*

### MEMBERSHIPS AND FELLOWSHIPS

Since he was such an eminent personality, Venkatraman Radhakrishnan was a member of many reputed institutions. These include the CSIRO, Australia, National Radio Astronomy Observatory, U.S.A, Indian National Committee for Astronomy etc. He was a Foreign Fellow of the Royal Swedish Academy of Sciences as well as U.S. National Science Academy. He was also a fellow at the Indian Academy of Sciences, Bangalore.

### DID YOU KNOW?

There are various terms that are used in Astrophysics and Radio astronomy. Some of them are as follows:

1. **Pulsars**- These are rotating neutron stars that throw off radiation at regular intervals, emitting light. They have a strong magnetic field.
2. **Interstellar clouds**- These are clusters of gas and dust and very dense. These clouds are present throughout the universe.
3. **Radio waves**- These are frequencies that are electro magnetic and are the building blocks of radio communication.

# ACTIVITIES

1. Make a painting of a galaxy with different colours.
2. Find out about V. Radhakrishnan's contribution in the field of aircrafts and ships.

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3. Make a class visit to any planetarium or astronomical observatory in your city and write about your experience.

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4. Match the following:

Earth	The planet with 79 moons
Blackhole	Clusters of gas and light which are hot
Jupiter	The only planet with life on it
Interstellar clouds	A dense matter that even light can't leave
Telescope	A device for viewing space and its objects

5. Watch documentaries and movies on astronomy and write about your favourite one.

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