



Celestial contribution

Prof Chengalur is one of the four scientists selected for the prestigious Dr Vikram Sarabhai award for his research in understanding the dark matter in dwarf galaxies

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Gazing up the sky one may often wonder what these stars are made of or how galaxies like the Milky Way were formed? Prof Jayaram Chengalur, dean, National Centre for Radio Astrophysics (NCRA), has made an attempt to unravel one such mystery.

Prof Chengalur, who has been working in astrophysics for over a decade, is one of the four scientists selected for the prestigious Dr Vikram Sarabhai research award by Physical Research Laboratory, Ahmedabad. He is being awarded for his contribution to radio astro-

physics. His study mainly revolves around understanding the dark matter in dwarf galaxies and characteristics of the interstellar medium using the giant meter wave radio telescope.

Talking about his research, he says, "The basic aim of our research is to try and understand how the first galaxy looked like. We believe that the Milky Way was formed from very small galaxies that merged together to form a big one. As per our present understanding, a galaxy like Milky Way is surrounded by several smaller galaxies that have not yet merged with it. Our research has focussed on such small (dwarf) galaxies. It would help us understand the formation of big galaxies."

Prof Chengalur and his students have conducted one of the largest studies of nearby dwarf galaxies by using a GMRT telescope at Narayangaon. Their study is called as Faint Irregular Galaxy GMRT Survey (FIGGS). This is for the first time when somebody has taken a detailed look at the gas in a galaxy. He explains, "When we look at the galaxy we think of stars. The FIGGS data has been used to study how stars are formed in a small galaxy and conditions under which the gas collapses to form a star. It turns out that small galaxies are very inefficient at forming stars. This is a crucial input for modeling the process by which galaxies evolve." People have done such kind of studies at great length for bigger galaxies but this is for the first time that someone has done it for the smaller galaxies, he says.

Armed with a B Tech degree in Electrical Engineering from IIT Kanpur, Prof Chengalur took research in astrophysics, a field he always wanted to enter. His mentor Prof Govind Swarup encouraged him to do research in this field. Prof Chengalur has also done his MS and PH D from Cornell University, New York and later studied synthesis of radio telescope for two years at Westerbork. "When I was working at the NCRA, it was Prof Swarup who encouraged me to take up this research. He has designed and built the GMRT telescope at Narayangaon which is now being used for over a hundred different projects every year," he says.

Regarding progress in space sciences research in India, Prof Chengalur says the Chandrayan mission and Astrosat have put India on the world map. "These are two milestones in Indian space research. It is a good time for research in the field," he quips.

Even the number of students opting for space sciences has grown in India. He says, "Many students are applying but we are selecting them very carefully. The right aptitude and ability for research are two main criterions for selection," he concludes.