

'There should be a place in every area where people can go watch the night sky'

For Prof Annapurni Subramaniam, a career in Astronomy and Astrophysics was the natural extension of a deep, early interest. She sees the spirit of inquiry as a constant in the journey – from a little girl in Kerala's Palakkad, fascinated by the night sky and the constellations, to a student, teacher, and now Director, Indian Institute of Astrophysics (IIA). In an interview with *DH's* R Krishnakumar, she spoke about promoting niche sciences and technologies looking beyond their 'return on investment' potential. Excerpts

How do you see the academic interest in Astronomy and Astrophysics evolving?

Unlike in my student years, people want to do projects much earlier because there is a lot of data to be made use of. If you look at the Astronomical Society of India's annual meetings, more students are contributing abstracts and presentations – and they are from colleges and universities in remote corners of the country. There is more aspiration, understanding, and interest. Over the last decade, India has seen increased investment in Astronomy; for example, India's participation in the Thirty-Metre

Telescope (proposed at Mauna Kea, Hawaii) project. Due to increased student interest, universities and colleges are also hiring faculty in Astronomy.

The IIA's Visible Emission Line Coronagraph (VELC) onboard Isro's Aditya L1 mission sports many firsts...

Positioning in space gives you an unobstructed view of the Sun. The original mission design was changed to launch the payloads to the first Lagrangian point of the Sun-Earth system, about 1.5 million km from the Earth. The mission will be an achievement in displaying our technological capabilities. The Sun's corona has a temperature of a million degrees Kelvin, which is much hotter than the Sun's surface; we still have not understood how this hot plasma exists. VELC will study this variation, the coronal mass ejections (eruption of plasma and magnetic fields from the corona), and their impact on space weather.

Can you explain Astro-tourism as envisioned around the proposed Dark Sky Reserve in Ladakh?

The Indian Astronomical Observato-

ry (in Hanle, in Ladakh's cold-desert region) at 4,500 metres above sea level houses the Himalayan Chandra Telescope, which we have been operating remotely for the last 22 years from our Hosakote campus. This is a magical place with dark sky conditions so good that you can see faint objects. But with increased activity (in Ladakh), light pollution could start anytime. There is a need to preserve the region in its pristine condition.

The administration of the Union Territory of Ladakh has been very

supportive. We are making people of the region ambassadors by training them in Astro-tourism. The government is providing them funds for telescopes; the idea is to have one in every homestay facility. There will be controls on light levels in the area and guidelines on the use of vehicle headlights and home lighting.

About 10 years ago, I could see Pleiades and Hyades (star clusters) from my home in Bengaluru. Now, I cannot. I came to Astronomy by looking at the night sky. Children are robbed of that experience

The Tuesday Interview

With

Prof Annapurni Subramaniam

Director, Indian Institute of Astrophysics



now. There should be a location in every area where people can go and enjoy the night sky.

Critical sectors, including Space, are opening up to local private industry...

Considering the geopolitical situation, indigenisation was a natural choice to make. There are strong foundations, but our organisations have been working in silos. We need some disruptive thinking and greater integration of our capacities. Investment, of course, is important for mass-production in niche technologies like Adaptive Optics. Measuring the value of all technologies in terms of their (commercial) 'return on investment' is not right. The returns will be minimal with certain technologies, but they also prepare us for other important applications.

Official figures say more women are choosing science as a career. How hopeful are you?

What we have been doing over the last 10 years is creating awareness. But how do you apply that change to scientific organisations? We'll have to build it into a framework. Right now, evaluation (of

men and women, at the recruitment level) is itself on an uneven footing because the years a woman spends on setting up a family are considered lost time. There is also the problem of not having many role models, who are crucial in shaping these aspirations. But women are getting more ambitious and are willing to take up challenges. The change is happening, but it cannot be an overnight fix.

You are a Carnatic violinist. Was there a conflict in pursuing varied interests and picking one for a career?

Palakkad was a melting pot of cultures. Both my parents are musicians and there was music at home, all the time. I also used to accompany my father on stage. There was no conflict; I still perform when I can. Regarding my career choice, Astronomy always interested me – as a little girl, I used to identify constellations and tell people about them. I was interested in Cosmology and Particle Physics and wanted to do night Astronomy. When I found the opportunity to join IIA as a student in 1990, what I thought of was the telescopes they had. I knew I had to be here.