

# India joins mega telescope project to unravel cosmic mysteries

## Astronomical observatory to be located on Mauna Kea in Hawaii

**Kalyan Ray**

**NEW DELHI:** India has taken the first step to become a partner in building a mega Gen Next telescope, which aims to unravel cosmic mysteries related to creation and death of stars and galaxies.

On Friday, Union Science and Technology Minister, Prithviraj Chavan, inked an agreement in California to mark India's joining in the Thirty Meter Telescope Project

(TMT) as an observer. Observer status is the first step in becoming a full partner in TMT and participating in the engineering development and scientific use of what will be the world's most advanced and capable astronomical observatory. Partnering also involves large financial contribution from India.

To be located on Mauna Kea, Hawaii, the astronomical observatory is scheduled to begin scientific operations in 2018.

For more than three years, Indian astrophysicists were debating on joining one of the three global telescope projects to have better access to world's top-quality observation instruments. The three telescopes on the table were European Extremely Large Telescope with a 42-m lens, TMT with a 30-m lens and Grand Magellan Telescope with 24.5-m lens.

After extensive consultations, scientists from three institutes including Indian Institute of Astrophysics, Bangalore, opted for the TMT because of its favourable funding pattern. However, what exactly would



**GenNext Telescope**

be Indian contribution is yet to be determined as the total project cost may well pass the \$1 billion mark.

"India recognises the importance of embarking on world-

class, international science collaborations. TMT will enable us to continue and expand our role as an international leader in technology development and fundamental research," said T Ramasami, secretary, department of science and technology.

"India is well recognised and respected as one of the top-ranking countries in the field of basic research. As part of TMT, India will be an integral part of the next generation of astronomical research," said Henry Yang, chairman of the TMT board and Chancellor of the University of California, Santa Barbara.

The on-site work is expected to begin late next year and achieve first light in 2018, at which time it will be the first of the next generation of ground-based optical observatories. This revolutionary telescope will integrate the latest innovations in precision control, segmented mirror design, and adaptive optics to correct for the blurring effect of earth's atmosphere.

Building on the success of the twin Keck telescopes, the core technology of TMT will be a 30-meter segmented primary mirror. This will give TMT nine times the collecting area of to-

day's largest optical telescopes and three times sharper images.

TMT has completed its \$77-million design development phase with primary financial support of \$50 million from the Gordon and Betty Moore Foundation and \$22 million from Canada. It has now entered the early construction phase.

Other two Indian institutes involved in the project are Inter-University Centre for Astronomy and Astrophysics, Pune and Aryabhata Research Institute of Observational Sciences, Nainital.

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