

Eye for the sky

Out of the Box

Tony Chan Fan-cheong is president of the Hong Kong University of Science and Technology. He has spent his life pursuing his dreams relating to teaching and research, and has unique views on education, scientific and technological development, and nurturing the young.



I RECENTLY JOINED a tour to Guizhou to learn about the latest developments in higher education and innovation and technology in western China.

Organized for presidents and senior administrators of Hong Kong universities, the tour was led by Tan Tieniu, vice president of Chinese Academy of Sciences and deputy director of the China liaison office.

I last visited Guizhou three years ago and was amazed by the enormous changes the province has undergone since then.

Back then, the new campus of Guizhou University was still an empty lot and the Five-hundred-meter Aperture Spherical Telescope (FAST), nicknamed "Sky Eye", was still in its initial stages of construction.

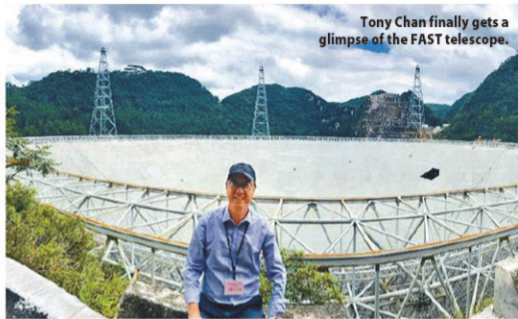
Now both mega-projects have been completed. Last year I wrote about FAST in my column and it was incredibly exciting for me to finally see the

world's largest telescope of its kind in person. The telescope's surface was constructed from 4,450 individual triangular metal panels and as big as 30 football pitches. Its reflector diameter dwarfs by 200m the Arecibo Observatory radio telescope in Puerto Rico (previously the world's largest) and it is also twice as sensitive and has 10 times the surveying speed of its American counterpart. FAST also enables scientists to detect many more pulsars than other similar devices.

Without doubt, the construction of FAST is a significant milestone in the history of Chinese astronomy and it will remain the most powerful telescope of its kind for the next two decades.

Taking a closer look at the whopping 500m wide disc, I noticed there was a large hole where seven metal panels were missing. It turned out they were removed for repairs because the control cables were damaged by rocks running down the adjoining karst hills in a landslide. Natural accidents can occur even in best designed scientific instruments.

Unlike other telescopes which were built in high altitude areas to stay above distortion-causing moisture at lower elevation, FAST is cradled in a depression isolated from magnetic disruptions and has a different observing frequency range allowing it to see through moisture in the air and it can even operate in the rain.



FAST is only one of the many basic science projects China has been investing in. For many people, investment in basic research such as astronomy does not promise immediate economic return.

However, basic research has always yielded substantial social and economic benefits in the longer term – for example, modern satellite communication and charge coupled devices in digital cameras originated in astronomy research.

This is well recognized in developed countries and Chinese leaders seem to realize this too.

Tony Chan finally gets a glimpse of the FAST telescope.

Guizhou is currently channeling efforts into developing big data, higher education, and a transportation network to connect with the whole nation. Foreign investors like Apple and Microsoft are setting up new data centers in Guizhou.

Guizhou University used only three years to turn massive vacant land into a new campus complex consisting of 30 buildings and the high-speed railway has

drastically reduced traveling time from Guiyang to Chongqing, Changsha and Kunming from over 10 hours to under three hours.

Guizhou is one of the poorest provinces in China, but has been driving to pursue economic growth through innovations and technologies.

Hong Kong is blessed with an abundance of resources; we should take stock of how we can make better use of our competitive advantage to propel economic growth to shape a better future for our city.