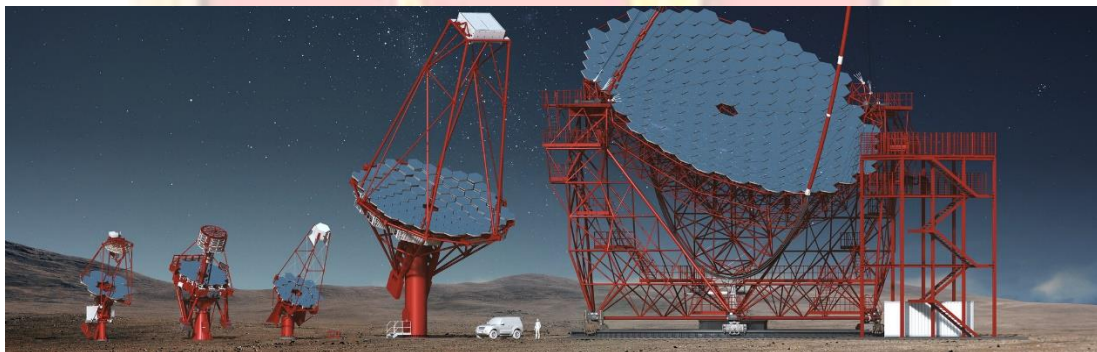


### Cherenkov radiation

- Light produced by charged particles when they pass through an optically transparent medium at speeds greater than the speed of light in that medium.
- The charged particles glow when they pass through a non-conducting medium under certain conditions. This phenomenon known as the Cherenkov radiation causes the characteristic blue glow in underwater nuclear reactors.
- There are essentially two methods for atmospheric Cerenkov experiments to reach lower energy thresholds.
- The first is to use very large size telescopes to collect the meager number of Cerenkov photons at these energies.
- The second method is to conduct experiments at very high altitudes where the number of Cerenkov photons is high enough to still allow the use of smaller telescopes.

#### **4. Major Atmospheric Cherenkov Experiment Telescope (MACE)**

- Major Atmospheric Cherenkov Experiment Telescope (MACE)
- It is the world's second-largest, ground-based gamma-ray telescope with a 21-metre-diameter dish (Under construction).



- The largest telescope of the same class is the 28-metre-diameter telescope, which is part of the High Energy Stereoscopic System (HESS) in Namibia.
- Collaborative effort - BARC, Tata Institute of Fundamental Research (TIFR) and the Indian Institute of Astrophysics.
- The telescope will study different astrophysical sources in energies of 20 GeV to 10 TeV range.