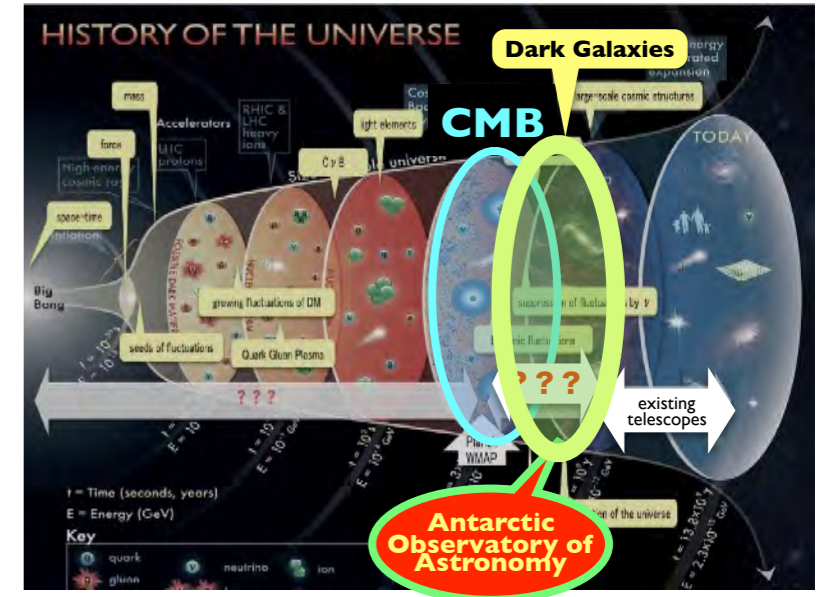


Antarctic Observatory of Astronomy

- Present Universe is in an ionized plasma state. On the other hand, it was neutral 0.3 Bi. years ago as the CMB is observable.
 => Ionization due to UV radiation from the stars.
- Existing telescopes could identify only 30% of required stars/galaxies. Remaining 70% -- "dark galaxies" -- should be found in the deep space.
- To understand the formation of galaxies, stars, and life, it is indispensable to clarify the ionization mechanism.



★ Deep-space exploration by THz Telescope at Antarctica

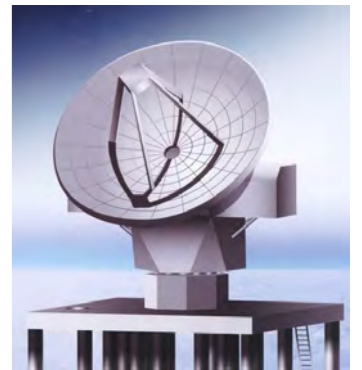
Step 1: 10m THz Telescope

Due to the expansion of the Universe, lights from the deep-space are in the THz range, which are dumped by the water vapor in the atmosphere.

=> Antarctica with its extremely low humidity is the only place on the Earth where THz waves are observable.

Wide angle survey up to 12.6 Bi. years ago by 10m telescope. Recommendation by SCAR (2010). Combining with the IR observation by the rocket/satellite experiment of the cosmic neutrino background project, we clarify the whole spectrum to determine the character and distance of dark galaxies.

Planned site: Concordia Station (3233m, built by France and Italy)



Step 2: 30m THz Telescope

Survey up to 13.6-13.7 Bi. years ago.

=> Direct observation of first stars and galaxies.

Based on the experience of 10m telescope.

Planned site: New Dome Fuji (3800m, NiPR)

