


Comprehensive understanding of the formation history of structures in the Universe

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Purpose and Significance of the Research

●What is the first objects born in the Universe?

We aim to reach the origin of the human beings and the Universe by looking at the very first stage of the Universe where the first star is born. HSC survey of Subaru telescope (lead by Miyazaki) has played a central roll to reveal the evolution of the Universe at the age of the Universe of 1 billion years to today. Achievements of the HSC survey greatly contributed to double the impact factor of the journal paper of Astronomical Society Japan. In the next decade, optical and infrared observations in astronomy will dramatically change; 8m telescope like Subaru will be taken over by the 30m gigantic telescope, and 2.4m Hubble Space Telescope has been taken over by the 6.5m James Webb Space Telescope, just launched in 2021. With those facilities, we expect to reach most distant (old) object in the Universe.

●What we should do in the next decade?

To maintain our momentum of the HSC survey and continue leading the world, we must participate in collaborative researches using the next-generation telescopes lead by US or Europe, making the most of the experience and knowledges we have gained.

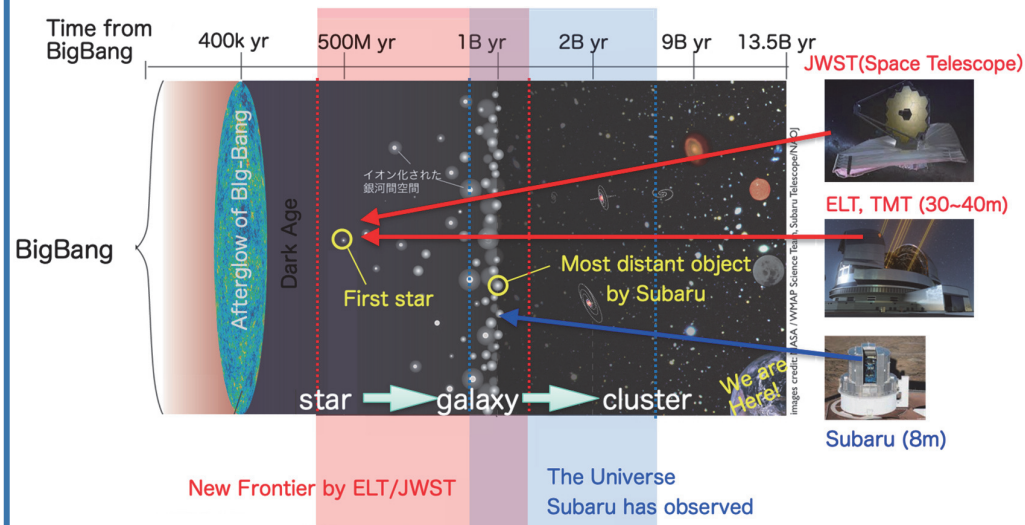


Fig.1 The history of the Universe and target object we aim to reveal

Organization of the Project Team

Japanese team consist of 11 faculty members with significant international collaboration experience and advanced achievements in observational, theoretical studies or instrumentation. Oversea counterparts are world-leading institutes, and we have been collaborated in many aspects.

PI MIYAZAKI(NAOJ) : Direction (based on experiences as the PI of HSC, Subaru Telescope)

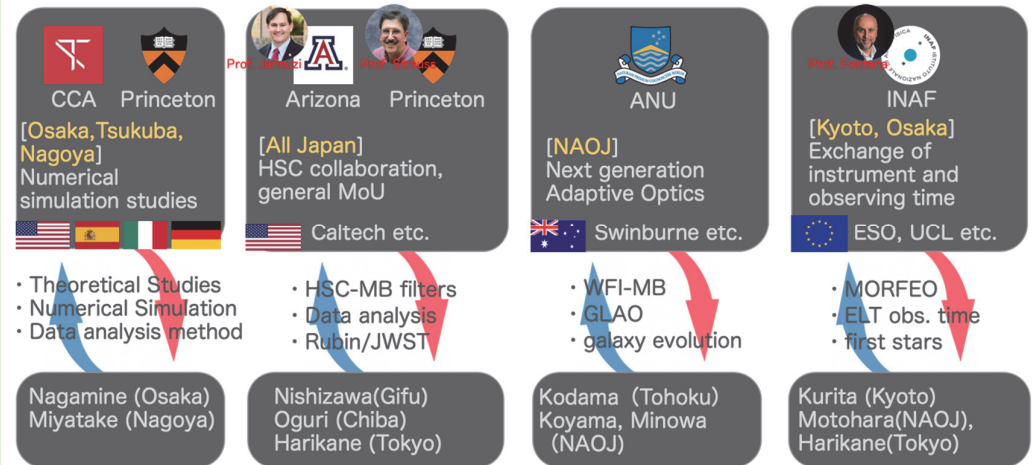


Fig.2 Our team

Plan for Fostering Early-career Researchers

Our fostering program is called "M3eX" Program. At the first stage, senior mentors (mostly PI and Co-Is) visit counterpart institutes together with the young researchers to accommodate collaboration studies. The young researcher, after two years, will work as the "young mentor" to support the second round visitor students. With this sustainable fostering system, we expand the target students not only in the PI/Co-I's institutes but whole astronomical community in Japan. We finally aim to send 100 students in total including long and short term stay.

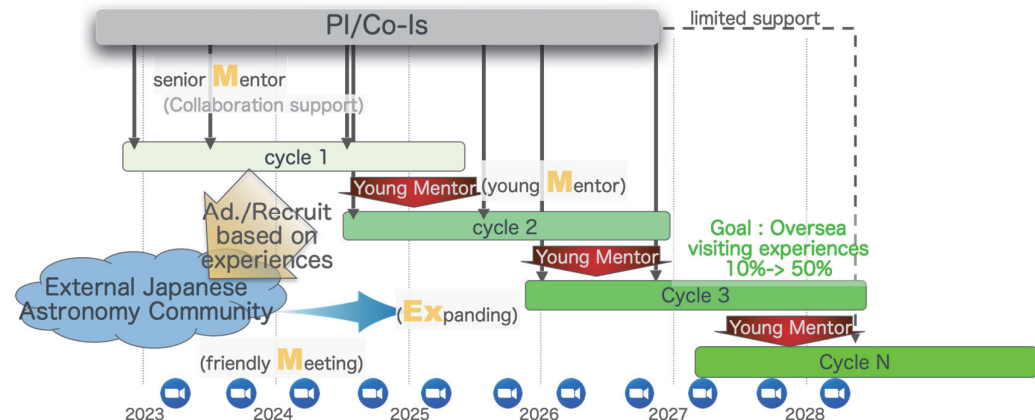


Fig.3 Our fostering program, M3eX