ALMA(Atacama Large Millimeter/Submillimeter Array) project and science with ALMA

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ALMA is an ultimate radio telescope on the Earth that have 64 12m antennas to observe millimeter and sub-millimeter radio waves, and it will be built by collaboration between Japan, North America, and Europe on a plateau at the altitude of 5000 m which is best site for observing sub-millimeter waves. Japan realized the 45m telescope and the millimeter wave interferometer, and has been greatly developed millimeter wave astronomy. ALMA is far superior to the 45m telescope and NMA in every respect of collecting area, resolution, and imaging capabilities. It will enable us to observe up to the wavelength of 300 micron that is the limit for ground telescopes. It will cultivate the unknown land of sub-millimeter astronomy, and make breakthroughs in important problems of modern astronomy such as formations of planetary systems and galaxies. In collaboration with the large telescopes for visual light and infrared and also with large-scale simulation experiments, it will become possible to investigate the whole process of evolution of the Universe. We are now capable of contributing to the vast areas of science extending from astronomy to deepen the understandings of the Universe and the life.