

The Development Progress of the K/Q/W Triple-Band Cryogenic Receiver for the Tianma Telescope

The Tianma Telescope is currently developing a K/Q/W triple-band cryogenic receiver. The entire system comprises a microwave quasi-optical system, a cryogenic electronics unit, a warm frequency conversion unit, and a power & control unit. The microwave quasi-optical system is being developed in collaboration with Osaka Metropolitan University (OMU) in Japan. OMU is responsible for the simulation and machining of the entire optical path, while the Shanghai Astronomical Observatory is in charge of the development of the dichroic filter. The cryogenic electronics unit is being developed by the Shanghai Astronomical Observatory, which has already completed the design and machining of the feed network for all frequency bands, and the vacuum dewar is under fabrication. The warm frequency conversion unit and the power & control unit are also being advanced in an orderly manner. The entire system is expected to be installed on the Tianma Telescope this year.

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