

Terahertz Space Telescope (TST) and Receiver Development

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A submillimeter space mission, namely, Terahertz Space Telescope (TST), is under study. The major scientific goal of this mission is to gain a greater understanding of star formation by mainly observing molecular oxygen (O_2) at 487.2 GHz and water (H_2O) at 556.9 GHz. Hopefully, TST will be used to measure some atmospheric species such as ozone (O_3) at 625.4 GHz and chlorine oxide (ClO) at 649.5 GHz to provide information that will help improve our understanding of Earth's atmosphere and global change, and carry out terahertz remote sensing for lunar and planetary exploration. TST's antenna will be 80 cm in diameter and two major instruments on board will be 0.48-0.65 THz superconducting SIS receiver and an imaging array working around 1 THz. The status of TST and its receiver development will be presented.