

Atmospheric Profiling Synthetic Observation System at THz Wave Band

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In this paper, we will introduce a dual-THz-band SIS (Superconductor- Insulator-Superconductor) heterodyne radiometer system which is under developing for the atmospheric profiling synthetic observation system project (APSOS). This THz system is intended to have a durable and compact design to meet the challenging requirements of remote operation at Tibetan Plateau. The system as well as its major components such as antenna tipping, quasi-optics, cryogenics, SIS mixers and FFTS backend will be discussed thoroughly. Some scientific simulation focusing on the atmospheric profiling components at THz bands will also be investigated.

Keywords — THz, SIS mixer, Radiometer, Atmospheric profiling.