

Multibeam SIS Receiver Development

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Abstract – A 3mm band focal plane array heterodyne receiver is being developed for the IRAM 30-m telescope at Pico Veleta in the Sierra Nevada, Spain. This receiver will comprise 25 dual linear polarization pixels operating across the 80-116 GHz nominal band. Design efforts are being made to enlarge the band to cover the full 3mm atmospheric transmission window available at Pico Veleta, i.e., 70-116 GHz. The instrument will be coupled to the Pico Veleta Telescope via a purely reflective low-loss optical system that includes a de-rotator. The receiver will be based on 5 x 5 cryogenically cooled dual-linear polarized feedhorns cascaded with orthomode transducers (OMT) and side band separating (2SB) SIS mixers, a technology which offers state-of-the-art performance and is already used in other IRAM receivers.

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