

**PROGRESS ON *TREND* – A LOW NOISE RECEIVER USER  
INSTRUMENT AT 1.25 THZ TO 1.5 THZ FOR AST/RO AT THE  
SOUTH POLE**

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At the Twelfth International Symposium on Space THz Technology last year we introduced and described the ongoing *TREND* (“*Terahertz Receiver with NbN Device*”) instrument development. *TREND* is a low-noise heterodyne receiver for the 1.25 THz to 1.5 THz frequency range. *TREND* takes advantage of the atmospheric attenuation window in this frequency range, as well as the availability of an excellent site, the US South Pole Station, and a 1.7 m diameter operational telescope (AST/RO) at that site.

Since last year’s report, the local oscillator laser has been completed and tested. The output power is as high as 200 mW on the strongest line. The laser is now being integrated with NbN HEB mixer devices in a new mixer block design, which we will describe. A new twin-slot antenna design is being used. We will also discuss the plans for installation of the system on AST/RO which is anticipated to occur during the austral summer season of 2002/2003. The receiver will then be used for observations of NII and CO during the austral winter season of 2003.

