

**“THz HEB heterodyne receivers for space and ground based radio astronomy”**, pp.235-238

Sergey Cherednichenko, Vladimir Drakinskiy, Therese Berg

**Abstract** – The paper discusses design, fabrication and test results of 1.4-1.9 THz hot-electron bolometer (HEB) mixers for the Herschel Space Observatory. The mixer performance was tested across its RF band as well as the IF band (2.4-4.8 GHz). The paper demonstrates that a number of space qualification issues (i.e. device lifetime, mixer unit robustness, etc.) have been successfully resolved while preserving the state of the art mixer performance. The mixer noise temperature is 850 K at 1.6 THz and 950 K at 1.9 THz as measured at 2.4 GHz. The noise bandwidth of our HEB mixer is 5-6 GHz.