

PROCEEDINGS
of the
THIRTEENTH INTERNATIONAL SYMPOSIUM ON
SPACE TERAHERTZ TECHNOLOGY

Tuesday – Thursday, March 26 – 28, 2002

**Maxwell-Dworkin Building
Harvard University
Cambridge, Massachusetts**

Organized by: Harvard-Smithsonian Center for Astrophysics

Organizing Committee

Raymond Blundell, Harvard-Smithsonian Center for Astrophysics
Edward Tong, Harvard-Smithsonian Center for Astrophysics

PREFACE

The Thirteenth International Symposium on Space Terahertz Technology was held on the campus of Harvard University, Cambridge, Massachusetts, on March 26 – 28, 2002. The Symposium was attended by about 130 scientists and engineers, from all over the world. The Symposium was organized into 10 oral sessions and an interactive forum for poster presentation. In all, 70 papers, distributed into the following broad categories, were presented:

Hot Electron Bolometers	16
SIS Mixers	14
Local Oscillator Technology	14
Optics	9
Equipment and Components	6
Sub-millimeter Systems	6
Direct Detectors	5

Included in these proceedings are 64 of the papers presented at the symposium and the 6 missing papers are represented by the accepted abstracts. Finally, we have also included one paper from the Twelfth Symposium, on request from last year's editor.

The Symposium was made possible largely through the effort of the staff members of the Submillimeter Receiver Laboratory of the Harvard-Smithsonian Center for Astrophysics (CfA). We thank Joanne Reynolds who was key in all organizational aspects of the symposium, and in preparing and editing the proceedings. We also thank Professor Irwin Shapiro, Director of the CfA, for supporting the symposium, and Dr. Venkatesh Narayanamurti, Dean of Engineering and Applied Sciences, for his support through the use of the Robert and Naida Lessin Forum. Finally, we would like to thank the session chairs, presenters, and participants for making this Thirteenth International Symposium on Space Terahertz Technology, a success.

*Edward Tong
Raymond Blundell*

Front cover: Photograph of the Terahertz telescope to be deployed in Northern Chile by the Submillimeter Receiver Lab of CfA in September 2002. Also shown is a spectral line of CO ($J = 9-8$) at 1.037 THz recorded by our HEB receiver operating at the Sub-Millimeter Telescope, in Arizona, January 2000.

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Day 1: TUESDAY, MARCH 26

Opening Session/Remarks

Raymond Blundell

Session 1: SIS I

Chair: Raymond Blundell

Fixed-Tuned Waveguide 0.6 THz SIS Mixer with Wide Band IF	A. Baryshev, E. Lauria, R. Hesper, T. Zijlstra, W. Wild	SRON NRAO Delft	1
Saturation by Noise and CW Signals in SIS Mixers	A.R. Kerr	NRAO	11
Quantum-limited Mixing in a Transformer-coupled SIS Resonator for the 600 GHz Frequency Band	C.E. Tong, R. Blundell, K.G. Megerian, J.A. Stern, H.G. LeDuc	CFA JPL	23
Design and Characterization of 225 – 370 GHz DSB and 250 – 360 GHz SSB Full Height Waveguide SIS Mixers	A. Navarrini, B. Lazareff, D. Billon-Pierron, I. Péron	IRAM	33

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Quantum Noise Contribution to the Receiver Noise Temperature of HEB THz Heterodyne Receivers	E. Kollberg, S. Yngvesson	Chalmers U Mass	73
A Broadband Terahertz Heterodyne Receiver with an NbN HEB Mixer	S. Cherednichenko, M. Kroug, P. Khosropanah, A. Adam, H. Merkel, E. Kollberg, D. Loudkov, B. Voronov, G. Gol'tsman, H. Richter, H.-W. Hubers	Chalmers MSPU DLR	85
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Spectral Sensitivity and Temporal Resolution of NbN Superconducting Single-Photon Detectors	A. Verevkin, J. Zhang, W. Slys, R. Sobolewski, A. Lipatov, O. Okunev, G. Chulkova, A. Korneev, K. Smirnov, G.N. Gol'tsman, A. Semenov	U. Rochester MSPU DLR	105

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Chair: Erik Kollberg

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Chair: Scott Paine

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Chair: Neal Erickson

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Chair: Urs Graf

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Session 11: SIS II

Chair: Tony Stark

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Authors and Registered Participants

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