# Proceedings of the 14th International Symposium on Space Terahertz Technology

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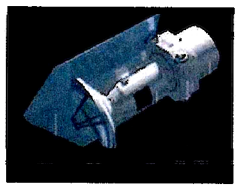
*Tucson, Arizona*

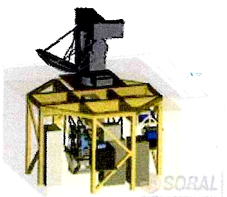
*April 22-24, 2003*
*Loews Ventana Canyon Resort*
*Tucson, Arizona*


**SOFIA**


**SAFIR**


**Herschel**


**ALMA**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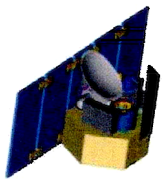
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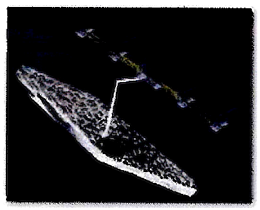
**TPF**

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**Atlanta, Georgia**

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***April, 2004***

## PREFACE

The fields of THz science and technology are now experiencing tremendous growth, both in the public and private sectors. Recent advances in theory, fabrication, and analytical tools permit for the first time the realization of devices, components, and systems that were only imagined just a short time ago. Much of this accelerated growth can be traced directly to the instrument requirements of space missions (*e.g. Herschel*). We will be benefiting from this work for years to come, both in future missions (*e.g. SOFIA* and *SAFIR)* and in enumerable remote sensing applications (spaceborne and terrestrial). THz science and technology is still in its infancy. The next decade should prove to be even more exciting and productive than the last!

The *14th International Symposium on Space TeraHertz Technology* was held at the Loews Ventana Canyon Resort in Tucson, Arizona from April 22-24, 2004. There were a total of ~125 engineers and scientists in attendance from around the world. There were 12 oral sessions and a 3-day long poster session. A total of 55 papers were presented in the oral sessions and 35 in the poster session, for a combined total of *90* papers. The number of contributions in each subject area were roughly as follows:

| | |
|---|---|
| Hot Electron Bolometers | 15 |
| SIS Mixers | 18 |
| Sources | 18 |
| Devices | 8 |
| Incoherent/Bolometers | 2 |
| Waveguide | 9 |
| Spectrometers | 5 |
| Systems | 10 |
| Optics | 5 |

The Symposium would not have been possible without the support of the NRAO Tucson staff (in particular Jennifer Neighbours) and the students of the Steward Observatory Radio Astronomy Laboratory (Chris Groppi, Dathon Golish, and Abby Hedden). We also wish to thank Dr. John Papapolymerou and Peter Kirby of the Georgia Institute of Technology for their help in organizing the conference and the IEEE MTT Society for their support. Finally, the Chairs thank the SOC, session chairs, presenters, and all participants for making the *14th International Symposium on Space TeraHertz Technology* an enjoyable and rewarding experience. We look forward to seeing you all in the future.

*Christopher K. Walker*
*John M. Payne*

# 14th International Symposium on Space Terahertz Technology

## Session 1: HEB MIXERS I

**Chair: Sigfrid Yngvesson**
University of Massachusetts at Amherst



## Session 2: SIS MIXERS I

**Chair: Tony Kerr**
National Radio Astronomy Observatory

## Session 3: SOURCES I

**Chair: John Payne**
National Radio Astronomy Observatory

## Session 4: DEVICES

**Chair: Art Lichtenberger**
University of Virginia

## Session 5: INCOHERENT/BOLOMETRIC DETECTORS

**Chair: Harvey Moseley**
NASA - Goddard Space Flight Center



## Session 6: WAVEGUIDE

**Chair: John Papapolymerou**
Georgia Institute of Technology

## Session 7: SPECTROMETERS

**Chair: Rudolf Schieder**
Physics Institute, University of Cologne



## Session 8: SYSTEMS

**Chair: Chris Walker**
University of Arizona

## Session 9: SIS MIXERS II

**Chair: Karl Jacobs**
University of Cologne

## Session 10: HEB MIXERS II

**Chair: Johathan Kawamura**
Jet Propulsion Laboratory



## Session 11: SOURCES II

**Chair: Imran Mehdi**
Jet Propulsion Laboratory

## Session 12: OPTICS

**Chair: Eric Mueller**
Coherent Inc.

## Session 13: POSTERS

**Chair: Tom Crowe**
University of Virginia

### HEB MIXERS



### SIS MIXERS

## DEVICES



## INCOHERENT/BOLOMETER DETECTORS



## WAVEGUIDE



## SPECTROMETERS

## SYSTEMS



## OPTICS