

From X-rays to X band

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Space Astrophysics Detectors and Detector Technologies

Program for Monday 26 June

7:30	8:45am	Registration
8:45	9:00am	Welcome & Logistics
9:00	9:30am	NASA's Strategic Plan and Science Opportunities - Hashima Hasan NASA HQ
9:30	10:00am	Science drivers for UV Optical Space Detector Development - Jon Morse Univ. Colorado
10:00	10:30am	UV Technology Overview – Charles Joseph, Rutgers Univ.
10:30	11:00am	Coffee Break
11:00	11:30pm	MCPs & Anodes for UV Astronomy – Oswald Seigmund, Univ. California, Berkeley
11:30	12:30pm	Open (contributed talks)
12:30	2:00pm	Lunch
2:00	2:30pm	UV-Optical CCDs ,– Mark Clampin, STScI
2:30	3:00pm	Active Pixel Sensors – Bedabrata Pain, JPL
3:00	3:30pm	Poster Highlights - reviewed by Barry Welsh, UC Berkeley
3:30	4:00pm	Coffee Break
4:00	4:30pm	GaN Detectors – Marty Peckerar, Naval Research Lab

4:30 5:30pm Open (Contributed talks)

6:00 8:30pm (Proposed) Buffet Dinner at Bertha's Restaurant (– max 50)

Contributed talks for Monday to include

[Novel MgZnO UV detectors](#) - R.D. Vispute, W. Yang, S. Choopun, R.P. Sharma & T. Venkatesan, College Park Maryland

[Large-area, photon-counting, mega-pixel arrays in UV/Optical](#) - Katsushi Arisaka, UCLA, Department of Physics and Astronomy

[Fully depleted, 300 micron thick CCD image sensors with applications in the x-ray, uv, visible and near-ir regions](#), S.E. Holland et al LBNL

[Delta-doped imagers for UV and EUV applications](#) - S. Nikzad, T.J. Jones, T.J. Cunningham, P.W. Deelman, and S.T. Elliott, Center for Space Microelectronics Technology, Jet Propulsion Laboratory, California Institute of Technology

[Low Noise Readout using Active Reset for CMOS APS](#) - B. Fowler, M. Godfrey, J. Balicki & J. Canfield, Pixel Devices International

[Development of a Hybrid CMOS Visible Focal Plane Array for Space Based Applications](#) - Y. Bai, J. T. Montroy, J. D. Blackwell, M. Farris, L. J. Kozlowski, K. Vural, J. D. Garnett, Rockwell Science Center, 1049 Camino Dos Rios, Thousand Oaks, CA 91360

[UV Digital Cameras Based on 32x32 and 128x128 Arrays of AlGaIn p-i-n Photodiodes](#) -J.D. Brown, J. Matthews, J. Boney, P. Srinivasan, & J.F. Schetzina, North Carolina State University

[Development of GaN-based films for use in UV sensitive but visible blind detectors](#) - Mel Ulmer, Manijeh Razeghi & Bruce Wessels, Northwestern University

Program for Tuesday 27 June

8:00 9:00am Registration

9:00 9:30am **Cosmic Journeys** - Alan Bunner, NASA HQ

9:30 10:00am **IR Science** – George Rieke, Univ. Arizona

10:00 10:30am **InSb & HgCdTe Detectors** – Judy Pipher, Univ. Rochester

10:30 11:00am Coffee Break

11:00 11:30am **Si IBC Arrays for the Mid-Infrared** – Jeff Van Cleve, Cornell Univ

11:30 12:00pm **Germanium detectors for the Far-Infrared** – Erick Young, Univ. Arizona

12:00 1:00pm Open (Contributed talks)

1:00 2:00pm Lunch

2:00 2:30pm **An Overview of STJ detectors** – Dan Prober, Univ. Yale

2:30 3:00pm **Some current & future developments in detectors for astrophysics at ESA** – Tony Peacock, ESTEC

3:00 3:30pm Poster highlights review

3:30 4:00pm Coffee Break

4:00 4:30pm **Electronic Devices for Cryogenic Detector Systems** – Murzy Jhabvala, GSFC

4:30 5:00pm **Transition Edge Sensors for Optical and Gamma ray Detectors** – Blas Cabrera, Stanford

5:00 6:00pm Open (Contributed talks)

6:00 8:00pm Conference Dinner - STScI Cafeteria

Drinks - Conference Barbecue - After Dinner Remarks from Steve Beckwith, Director STScI

Contributed talks for Tuesday to include:

Camera-on-a-Chip technology for astronomical sensors- Don Hall, Institute for Astronomy, Hawaii

NGST Detectors: What We Need – Knox Long (STScI), Matthew Greenhouse (NASA/GSFC), Craig McCreight(NASA/Ames) & Bernard Rauscher (STScI).

[HgCdTe Arrays for the Far-Infrared](#) - Albert Betz, University of Colorado

[Initial Performance Results of the 2048 by 2048 2.5 microns HgCdTe Focal Plane Array](#) - Cabelli, et al, Rockwell Science Center

[NTD Germanium: Current Successes and Future Directions](#) - E.E. Haller & J.W. Beeman, University of California, Berkeley and Lawrence Berkeley National Laboratory

[Quantum Well Infrared Photodetectors for Astronomy](#) - Michael Ressler, et al. JPL

[Single Photon Energy Resolving Detectors](#) - Armen Gulian, NRL

[SQUID Multiplexers for Large Transition Edge Sensor \(TES\) Detector Arrays](#) - S. Nam, J. Chervenak, E. Grossman, K. Irwin, J. Martinis, National Institute of Standards and Technology, H. Moseley, R. Shafer, Goddard Space Flight Center

Program for Wednesday 28 June

8:00 9:00am Registration

9:00 9:30am Gamma-ray science – Fiona Harrison, Cal Tech

9:30 10:00am High Resolution Detector technologies for an Advanced Compton Telescope – Elena Aprile, Columbia Univ.

10:00 10:30am CZT Detectors for Hard X-Ray & Gamma Ray Astronomy - Current Technologies - Ann Parson, GSFC

10:30 11:00am Coffee Break

11:00 11:30am Detectors for GeV Gamma Rays - Bob Hartman, GSFC

11:30 12:30pm Contributed talks

12:30 2:00pm Lunch

2:00 2:30pm X-Ray Science – Steven S. Murray, Harvard-Smithsonian Center for Astrophysics

2:30 3:00pm X-Ray CCDs – Mark Bautz, MIT

3:00 3:30pm Poster review highlights

3:30 4:00pm Coffee Break

4:00 4:30pm [X-Ray Calorimeters](#) – Caroline Stahle, GSFC

4:30 5:30pm Contributed talks

Contributed talks for Wednesday to include:

[Gas Proportional Pixel Detectors for X and Gamma-ray Imaging](#) - P. Deines-Jones¹, K. Black¹, S.D. Hunter¹, J.R. Huang², T. N. Jackson², K. Jahoda¹, H. Klauk², and W. Qian². ¹NASA/Goddard Space Flight Center, Greenbelt, MD 20771; ²Center for Thin Film Devices, 121 Electrical

[Characterization of a multianode photomultiplier tube for use with scintillating fibers to detect gamma rays](#) - Keith Rielage, McDonnell Space Sciences Center & Dept. of Physics, Washington University, St. Louis, MO 63130

[Detector systems for the X-ray evolving universe spectroscopy mission \(XEUS\)](#) - M. Bavdaz, A. Peacock, A. Parmar, M. Beijersbergen, J. Schieman⁺. Space Science Department of ESA, ESTEC, 2200AG Noordwijk, Netherlands. ⁺Directorate Of Manned Spaceflight and Microgravity ESA, ESTEC, 2200AG Noordwijk, Netherlands

[Advanced X-ray CCD Detectors for the Constellation-X and MAXIM Missions](#) - George R. Ricker, MIT

[Hard X-ray Telescope for Space Flight Use](#) - Upendra Desai, Larry Orwig, Code 682 GSFC/NASA, Lawrence Mertz, Digiphase Technology, Palo Alto, CA., Carl Gaither, CNA Corporation, Washington, DC, Walter Gibson, Center for X-ray Optics University at Albany, N.Y.

[Modeling of CdZnTe Strip X-ray Detectors](#) - Emrah Kalemci, Center for Astrophysics and Space Sciences, University of California at San Diego

[Position-Sensitive CZT Detectors for X-Ray and Gamma-Ray Astronomy](#) - J. Matteson, W. Heindl, E. Kalemci, M. Pelling, R. Rothschild, T. Skelton, UCSD, P. Hink, K. Slavis, WUSTL

[Magnetic Calorimeters for X-Ray and Gamma-Ray Detection](#) - George Seidel, Brown University

[NTD Germanium-Based Microcalorimeters for X-Ray and Gamma-Ray Astronomy](#) - Eric Silver ^a, Simon Bandler ^a, Herbert Schnopper ^a, Stephen Murray ^a, Marco Barbera ^c, Norm Madden ^b, Don Landis ^b, Jeff Beeman ^b, Eugene Haller ^b, Greg Tucker ^d. ^a Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, ^b Lawrence Berkeley National Laboratory, 1 Cyclotron Road, Berkeley, CA 94720, ^c Osservatorio Astronomico di Palermo, Palermo, Italy, ^d Brown University, Providence, RI 02912

[Superconducting Transition-Edge Sensor X-Ray Microcalorimeters](#) - John M. Martinis, N. Bergren, S. Deiker, G. C. Hilton, K. D. Irwin, S. W. Nam, D. A. Rudman and D. A. Wollman

Program for Thursday 29 June

- 8:00 9:00am** Registration
- 9:00 9:30am** **NASA Technology Funding Opportunities** – Rick Howard, NASA HQ
- 9:30 10:00am** **TES Arrays for Far-Infrared Imaging & Spectroscopy** - Harvey Moseley, GSFC
- 10:00 10:30am** [Far-IR Photon Counting Detectors](#) – Rob Schoelkopf, Yale Univ
- 10:30 11:00am** Coffee Break
- 11:00 11:30am** **Semiconductor Bolometers & Applications** - Jamie Bock, JPL
- 11:30 12:30pm** Contributed talks
- 12:30 2:00pm** Lunch
- 2:00 2:30pm** [HEB Heterodyne Sensors for Submillimetre/FAR IR Astronomy](#)– William R. McGrath, JPL
- 2:30 3:00pm** **HEMT Technology for Astrophysics Applications** – Todd Gaier, JPL
- 3:00 3:30pm** Poster Highlights - reviewed by Charles Lawrence, JPL
- 3:30 4:00pm** Coffee Break
- 4:00 4:30pm** **Submillimeter & Far Infrared Heterodyne Systems** - Jonas Zmuidzinas, CalTech
- 4:30 5:30pm** Open (Short Talks – Discussions – Poster Highlights)

Contributed talks for Thursday to include:

[Voltage-biased Superconducting Bolometers for the far-Infrared to millimeter wavelength range](#) - Adrian T. Lee, Jan M. Gildemeister, Mike Myers, Paul L. Richards, Jesse Skidmore, and Jongsoo Yoon, University of California, Berkeley

[Ideal Integrating Bolometer](#) - Al Kogut, GSFC

[Characterization of Transition Edge Sensor Arrays for Detection of Submillimeter Radiation](#) - J. A. Chervenak, K. D. Irwin, E. N. Grossman, and C. D. Reintsema - National Institute of Standards and Technology, Boulder, S. H. Moseley and C. A. Allen, Goddard Space Flight Center, Greenbelt, MD

[Superconducting Transition Edge Sensor Bolometer Arrays for Submillimeter Astronomy](#) - Dominic Benford GSFC

[Hot-electron direct detectors: feasibility of NEP \$H 10^{-20}\$ W Hz at submillimeter waves](#) - Boris S. Karasik, William R. McGrath, and Henry G. LeDuc, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109, Michael E. Gershenson, Dept. of Physics and Astronomy, Rutgers University, Piscataway, NJ 08854, Andrew V. Sergeev, Dept. of Electrical and Computer Engineering, Wayne State University, Detroit, MI 48202

[Wideband Lag Correlators for Heterodyne Spectroscopy](#) - Andrew Harris, University of Maryland

[Tunable antenna-coupled intersubband terahertz \(TACIT\) mixers: the quantum limit without the quantum liquid.](#) - M. S. Sherwin,¹ C. Cates,¹ K. Maranowski,² A. C. Gossard² and W. R. McGrath³. ¹Physics Department and Center for Terahertz Science and Technology, UCSB, Santa Barbara, CA 93106, ²Materials Department, UCSB, Santa Barbara, CA 93106, ³Center for Space Microelectronics Technology, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109

[Laser Micromachining of THz Waveguide, and Quasi-Optical Components](#) - C. Walker, C. Drouet d'Aubigny, B. Jones, C., Groppi Steward Observatory, Univ. of Arizona, J. Papapolymerou, Dept. of Electrical and Computer Engineering, Univ. of Arizona

[A novel approach for a tunable sub-millimeter detector](#) - Faiz Rahman, Caltech
