Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII

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The performance of the bolometer array and readout system during the 2012/2013 flight of
the E and B experiment (EBEX) [9153-37]
K. MacDermid, McGill Univ. (Canada); A. M. Aboobaker, Univ. of Minnesota (United
States); P. Ade, Rutherford Appleton Lab. (United Kingdom); F. Aubin, Univ. of Minnesota,
Twin Cities (United States); C. Baccigalupi, Scuola Internazionale Superiore di Studi
Avanzati (Italy); K. Bandura, McGill Univ. (Canada); C. Bao, Univ. of Minnesota (United
States); J. Borrill, Univ. of California, Berkeley (United States); D. Chapman, J. Didier,
Columbia Univ. (United States); M. Dobbs, McGill Univ. (Canada) and Canadian Institute
BICEP2 and Keck array: upgrades and improved beam characterization [9153-38]

I. Buder, Harvard-Smithsonian Ctr. for Astrophysics (United States); P. A. R. Ade, Cardiff Univ. (United Kingdom); Z. Ahmed, Stanford Univ. (United States) and SLAC National Accelerator Lab., Kavli Institute for Particle Astrophysics and Cosmology (United States); R. W. Aikin, California Institute of Technology (United States); K. D. Alexander, Harvard-Smithsonian Ctr. for Astrophysics (United States); M. Amiri, The Univ. of British Columbia (Canada); D. Barkats, Joint ALMA Observatory (Chile); S. J. Benton, Univ. of Toronto (Canada); C. A. Bischoff, Harvard-Smithsonian Ctr. for Astrophysics (United States); J. J. Bock, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); J. A. Bonetti, Jet Propulsion Lab. (United States); J. A. Brevik, California Institute of Technology (United States); E. Bullock, Univ. of Minnesota (United States); B. Burger, The Univ. of British Columbia (Canada); B. P. Crill, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); G. Davis, The Univ. of British Columbia (Canada); C. D. Dowell, Jet Propulsion Lab. (United States); L. Duband, Commissariat a l’Energie Atomique (France); J. P. Filippini, California Institute of Technology (United States); S. Fliescher, Univ. of Minnesota (United States); S. R. Golwala, California Institute of Technology (United States); M. S. Gordon, Harvard-Smithsonian Ctr. for Astrophysics (United States); M. Halpern, M. Hasselfield, The Univ. of British Columbia (Canada); S. R. Hildebrandt, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); G. C. Hilton, National Institute of Standards and Technology (United States); V. V. Hristov, H. Hui, California Institute of Technology (United States); K. D. Irwin, Stanford Univ. (United States); SLAC National Accelerator Lab., Kavli Institute for Particle Astrophysics and Cosmology (United States), and National Institute of Standards and Technology (United States); K. S. Karkare, Harvard-Smithsonian Ctr. for Astrophysics (United States); J. P. Kaufman, B. G. Keating, Univ. of California, San Diego (United States); S. Kefeli, California Institute of Technology (United States); S. A. Kernasovskiy, Stanford Univ. (United States); J. M. Kovac, Harvard-Smithsonian Ctr. for Astrophysic (United States); C. L. Kuo, Stanford Univ. (United States) and SLAC National Accelerator Lab., Kavli Institute for Particle Astrophysics and Cosmology (United States); E. M. Leitch, The Univ. of Chicago (United States); M. Lueker, P. Mason, California Institute of Technology (United States); K. G. Megerian, Jet Propulsion Lab. (United States); C. B. Netterfield, Univ. of Toronto (Canada) and Canadian Institute for Advanced Research (Canada); H. T. Nguyen, R. O’Brient, Jet Propulsion Lab. (United States);
Pre-flight integration and characterization of the SPIDER balloon-borne telescope [9153-39]

A. S. Rahlin, Princeton Univ. (United States); P. A. R. Ade, Cardiff Univ. (United Kingdom); M. Amiri, The Univ. of British Columbia (Canada); S. J. Benton, Univ. of Toronto (Canada); J. J. Bock, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); J. R. Bond, Canadian Institute for Theoretical Astrophysics, Inc., Univ. of Toronto (Canada) and Canadian Institute for Advanced Research (Canada); S. A. Bryan, Case Western Reserve Univ. (United States); H. C. Chiang, Univ. of KwaZulu-Natal (South Africa); C. R. Contaldi, Imperial College London (United Kingdom); B. P. Crill, O. Doré, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); M. Farhang, Canadian Institute for Theoretical Astrophysics, Univ. of Toronto (Canada) and Univ. of Toronto (Canada); J. P. Filipini, California Institute of Technology (United States); L. M. Fissel, Univ. of Toronto (Canada) and Northwestern Univ. (United States); A. A. Fraisse, A. E. Gambrel, Princeton Univ. (United States); N. N. Gandilo, Univ. of Toronto (Canada); S. Golwala, California Institute of Technology (United States); J. E. Gudmundsson, Princeton Univ. (United States); M. Halpern, The Univ. of British Columbia (Canada) and Canadian Institute for Advanced Research (Canada); M. F. Hasselfield, Princeton Univ. (United States) and The Univ. of British Columbia (Canada); G. Hilton, National Institute of Standards and Technology (United States); W. A. Holmes, Jet Propulsion Lab. (United States); V. V. Hristov, California Institute of Technology (United States); K. D. Irwin, Stanford Univ. (United States); R. W. Ogburn IV, Stanford Univ. (United States) and SLAC National Accelerator Lab., Kavli Institute for Particle Astrophysics and Cosmology (United States); A. Orlando, Univ. of California, San Diego (United States); C. Pryke, Univ. of Minnesota (United States); C. D. Reintsema, National Institute of Standards and Technology (United States); S. Richter, Harvard-Smithsonian Ctr. for Astrophysics (United States); R. Schwarz, Univ. of Minnesota (United States); C. D. Sheehy, Univ. of Minnesota (United States) and Univ. of Chicago (United States); Z. K. Staniszewski, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); R. V. Sudiwala, Cardiff Univ. (United Kingdom); G. P. Teply, California Institute of Technology (United States); K. L. Thompson, Stanford Univ. (United States) and SLAC National Accelerator Lab., Kavli Institute for Particle Astrophysics and Cosmology (United States); J. A. Shariff, Univ. of Toronto (Canada); J. D. Soler, Institut d’Astrophysique Spatiale (France) and Univ. of Toronto (Canada); P. Wilson, Jet Propulsion Lab. (United States); C. L. Wong, Harvard-Smithsonian Ctr. for Astrophysics (United States); K. W. Yoon, Stanford Univ. (United States) and SLAC National Accelerator Lab., Kavli Institute for Particle Astrophysics and Cosmology (United States); M. C. Runyan, Jet Propulsion Lab. (United States); J. A. Shariff, Univ. of Toronto (Canada); J. D. Soler, Institut d’Astrophysique Spatiale (France) and Univ. of Toronto (Canada);
SESSION 8  OPTICS AND COMPONENTS

9153 14  Refractive telescope systems for future cosmic microwave background polarimetry experiments [9153-40]
P. Hargrave, Cardiff Univ. (United Kingdom); G. Savini, Univ. College London (United Kingdom); M. Gradziel, N. Trappe, N. Tynan, M. Candotti, National Univ. of Ireland, Maynooth (Ireland); A. Challinor, Univ. of Cambridge (United Kingdom); S. Sørensen, TICRA (Denmark); P. Ade, R. Sudiwala, Cardiff Univ. (United Kingdom); M. van der Vorst, European Space Agency (Netherlands)

9153 16  Efficient algorithms for optimising the optical performance of profiled smooth walled horns for future CMB and Far-IR missions [9153-42]
D. McCarthy, N. Trappe, J. A. Murphy, C. O'Sullivan, M. Gradziel, S. Doherty, C. Bracken, N. Tynan, National Univ. of Ireland, Maynooth (Ireland); A. Polegre, European Space Agency (Netherlands); P. Huggard, Rutherford Appleton Lab. (United Kingdom)

9153 17  Development of large radii half-wave plates for CMB satellite missions [9153-43]
G. Pisano, Cardiff Univ. (United Kingdom) and The Univ. of Manchester (United Kingdom); B. Maffei, M. W. Ng, V. Haynes, M. Brown, F. Noviello, The Univ. of Manchester (United Kingdom); P. de Bernardis, S. Masi, F. Piacentini, L. Pagano, M. Salatino, Univ. degli Studi di Roma La Sapienza (Italy); B. Ellison, M. Henry, Rutherford Appleton Lab. (United Kingdom); P. de Maagt, B. Shortt, European Space Agency (Netherlands)

9153 18  Polarization properties of a multi-moded feed horn for the Primordial Inflation Explorer mission [9153-44]
A. Kogut, D. J. Fixsen, R. S. Hill, P. Mirel, NASA Goddard Space Flight Ctr. (United States)

9153 19  Optical design for the 450, 350, and 200 μm ArTeMiS camera [9153-45]
D. Dubreuil, J. Martignac, J. C. Toussaint, F. Visticot, C. Delisle, P. Gallais, J. Le-Pennec, T. Lerch, P. André, M. Lortholary, IRFU-CEA (France); B. Maffei, V. Haynes, The Univ. of Manchester (United Kingdom); N. Hurtado, Univ. zu Köln (Germany); G. Pisano, The Univ. of Manchester (United Kingdom); V. Revéret, L. Rodriguez, M. Talvard, IRFU-CEA (France)

SESSION 9  MULTIPLEXING AND READOUT SYSTEMS

9153 1A  Digital frequency domain multiplexing readout electronics for the next generation of millimeter telescopes [9153-46]
A. N. Bender, J.-F. Cliche, T. de Haan, McGill Univ. (Canada); M. A. Dobbs, McGill Univ. (Canada) and Canadian Institute for Advanced Research (Canada); A. J. Gilbert, J. Montgomery, McGill Univ. (Canada); N. Rowlands, COM DEV Canada (Canada); G. M. Smecher, Three-Speed Logic, Inc. (Canada); K. Smith, A. Wilson, COM DEV Canada (Canada)
Optimization of cold resonant filters for frequency domain multiplexed readout of POLARBEAR-2 [9153-47]

K. Hattori, High Energy Accelerator Research Organization, KEK (Japan); Y. Akiba, The Graduate Univ. for Advanced Studies (Japan); K. Arnold, D. Barron, Univ. of California, San Diego (United States); A. Bender, M. Dobbs, T. de Haan, McGill Univ. (Canada); N. Harrington, Univ. of California, Berkeley (United States); M. Hasegawa, M. Hazumi, High Energy Accelerator Research Organization, KEK (Japan); W. L. Holzapfel, Univ. of California, Berkeley (United States); Y. Hori, High Energy Accelerator Research Organization, KEK (Japan); B. G. Keating, Univ. of California, San Diego (United States); A. T. Lee, Univ. of California, Berkeley (United States); J. Montgomery, McGill Univ. (Canada); H. Morii, High Energy Accelerator Research Organization, KEK (Japan); M. Myers, Univ. of California, Berkeley (United States); K. Rotermund, Dalhousie Univ. (Canada); I. Shirley, Univ. of California, Berkeley (United States); G. Smecher, Three-Speed Logic, Inc. (Canada); N. Stebor, Univ. of California, San Diego (United States); A. Suzuki, Univ. of California, Berkeley (United States); T. Tomaru, The Graduate Univ. for Advanced Studies (Japan)

The 160 TES bolometer read-out using FDM for SAFARI [9153-50]


SESSION 10 CMB INSTRUMENTS: NEW DEVELOPMENTS I

The Simons Array: expanding POLARBEAR to three multi-chroic telescopes [9153-51]

K. Arnold, N. Stebor, Univ. of California, San Diego (United States); P. A. R. Ade, Cardiff Univ. (United Kingdom); Y. Akiba, The Graduate Univ. for Advanced Studies (Japan); A. E. Anthony, Univ. of Colorado at Boulder (United States); M. Atlas, D. Barron, Univ. of California, San Diego (United States); A. Bender, McGill Univ. (Canada); D. Boettger, Univ. of California, San Diego (United States); J. Borrell, Lawrence Berkeley National Lab. (United States) and Univ. of California, Berkeley (United States); S. Chapman, Dalhousie Univ. (Canada); Y. Chinone, High Energy Accelerator Research Organization, KEK (Japan) and Univ. of California, Berkeley (United States); A. Cukierman, Univ. of California, Berkeley (United States); M. Dobbs, McGill Univ. (Canada); T. Elleflot, Univ. of California, San Diego (United States); J. Errard, Univ. of California, Berkeley (United States) and Lawrence Berkeley National Lab. (United States); G. Fabbian, AstroParticle et Cosmologie, CNRS, Univ. Paris Diderot (France), Observatoire de Paris, IFRU-CEA (France), and Scuola Internazionale Superiore di Studi Avanzati (Italy); C. Feng, Univ. of California, San Diego (United States); A. Gilbert, McGill Univ. (Canada); N. Goecckner-Wald, Univ. of California, Berkeley (United States); N. W. Halverson, Univ. of Colorado at Boulder (United States); M. Hasegawa, High Energy Accelerator Research Organization, KEK (Japan) and The Gradate Univ. for Advanced Studies (Japan); K. Hattori, High Energy Accelerator Research Organization, KEK (Japan); M. Hazumi, High Energy Accelerator Research Organization, KEK (Japan), The Graduate Univ. for Advanced Studies (Japan), and Kavli Institute for the Physics and Mathematics of the Universe, The Univ. of Tokyo (Japan); W. L. Holzapfel, Univ. of California, Berkeley (United States); Y. Hori, High Energy Accelerator Research Organization, KEK (Japan); Y. Inoue, The Graduate Univ. for Advanced Studies (Japan); G. C. Jaehnig, Univ. of Colorado at Boulder (United States); A. H. Jaffe, Imperial College London (United Kingdom); N. Katayama, Kavli Institute for the Physics and Mathematics, The Univ. of Tokyo (Japan); B. Keating, Univ. of California, San Diego (United States); Z. Kermish, Princeton Univ. (United States); R. Keskitalo, Lawrence Berkeley National Lab. (United States); B. van Leeuwen, P. van Winden, B. Jackson, Netherlands Institute for Space Research (Netherlands); D. Barron, Univ. of California, San Diego (United States); Z. Kermish, Princeton Univ. (United States); R. Keskitalo, Lawrence Berkeley National Lab. (United States); B. van Leeuwen, P. van Winden, B. Jackson, Netherlands Institute for Space Research (Netherlands).
PILOT: a balloon-borne experiment to measure the polarized FIR emission of dust grains in the interstellar medium [9153-53]

R. Misawa, J.-Ph. Bernard, Institut de Recherche en Astrophysique et Planétologie (France); P. Aude, Cardiff Univ. (United Kingdom); Y. André, Ctr. National des Etudes Spatiales (France); P. de Bernardis, Univ. degli Studi di Roma La Sapienza (Italy); M. Bouzit, M. Charra, B. Crane, J. P. Dubois, Institut d’Astrophysique Spatiale, CNES, Univ. Paris Sud (France); C. Engel, Institut de Recherche en Astrophysique et Planétologie (France); M. Griffin, P. Hargrave, Cardiff Univ. (United Kingdom); B. Leriche, Y. Longval, Institut d’Astrophysique Spatiale, CNES, Univ. Paris Sud (France); S. Maes, C. Marty, W. Marty, Institut de Recherche en Astrophysique et Planétologie (France); S. Masi, Univ. degli Studi di Roma La Sapienza (Italy); B. Mot, J. Narbonne, Institut de Recherche en Astrophysique et Planétologie (France); F. Pajot, Institut d’Astrophysique Spatiale, CNRS, Univ. Paris Sud (France); G. Pisano, Cardiff Univ. (United Kingdom); N. Ponthieu, Grenoble Univ. (France); I. Ristorcelli, Institut de Recherche en Astrophysique et Planétologie (France); L. Rodriguez, CEA, Saclay (France); G. Roudil, Institut de Recherche en Astrophysique et Planétologie (France); M. Salatino, Univ. degli Studi di Roma La Sapienza (Italy); G. Savini, C. Tucker, Cardiff Univ. (United Kingdom)

CLASS: the cosmology large angular scale surveyor [9153-54]

T. Essinger-Hileman, A. Ali, Johns Hopkins Univ. (United States); M. Amiri, The Univ. of British Columbia (Canada); J. W. Appel, Johns Hopkins Univ. (United States); D. Araujo, Columbia Lab. (United States); T. Kisner, Lawrence Berkeley National Lab. (United States) and Univ. of California, Berkeley (United States); M. Le Jeune, AstroParticle et Cosmologie, CNRS, Univ. Paris Diderot (France) and Observatoire de Paris, IRFU-CEA (France); A. T. Lee, Univ. of California, Berkeley (United States) and Lawrence Berkeley National Lab. (United States); E. M. Leitch, The Univ. of Chicago (United States) and Kavli Institute for Cosmological Physics, The Univ. of Chicago (United States); E. Linder, Lawrence Berkeley National Lab. (United States); F. Matsuda, Univ. of California, San Diego (United States); T. Matsumura, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (Japan); X. Meng, Univ. of California, Berkeley (United States); N. J. Miller, NASA Goddard Space Flight Ctr. (United States); H. Morii, High Energy Accelerator Research Organization, KEK (Japan); M. J. Myers, Univ. of California, Berkeley (United States); M. Navaroli, Univ. of California, San Diego (United States) and Lawrence Berkeley National Lab. (United States); H. Nishino, Kavli Institute for the Physics and Mathematics, The Univ. of Tokyo (Japan); T. Okamura, High Energy Accelerator Research Organization, KEK (Japan); H. Paar, Univ. of California, San Diego (United States); J. Peloton, D. Poletti, AstroParticle et Cosmologie, CNRS, Univ. Paris Diderot (France) and Observatoire de Paris, IRFU-CEA (France); C. Raum, Univ. of California, Berkeley (United States); G. Rebeiz, Univ. of California, San Diego (United States); C. L. Reichardt, Univ. of Melbourne (Australia); P. L. Richards, Univ. of California, Berkeley (United States); C. Ross, K. M. Rotermund, Dalhouse Univ. (Canada); D. E. Schenc, Univ. of Colorado at Boulder (United States); B. D. Sherwin, I. Shirley, Univ. of California, Berkeley (United States); M. Sholl, Lawrence Berkeley National Lab. (United States); P. Srithanasak, Univ. of California, San Diego (United States); G. Smecher, Three-Speed Logic, Inc. (Canada); B. Steinbach, Univ. of California, Berkeley (United States); R. Stompor, AstroParticle et Cosmologie, CNRS, Univ. Paris Diderot (France) and Observatoire de Paris, IRFU-CEA (France); A. Suzuki, Univ. of California, Berkeley (United States); J. Suzuki, High Energy Accelerator Research Organization, KEK (Japan); S. Takakura, Osaka Univ. (Japan) and High Energy Accelerator Research Organization, KEK (Japan); T. Tomaru, High Energy Accelerator Research Organization, KEK (Japan); B. Wilson, A. Yadav, Univ. of California, San Diego (United States); O. Zahn, Lawrence Berkeley National Lab. (United States)
The cosmology large angular scale surveyor (CLASS): 38-GHz detector array of bolometric polarimeters [9153-55]

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The Primordial Inflation Polarization Explorer (PIPER) [9153-57]
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BICEP3: a 95GHz refracting telescope for degree-scale CMB polarization [9153-59]
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SPT-3G: a next-generation cosmic microwave background polarization experiment on the South Pole telescope [9153-61]

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SESSION 12  TERAHERTZ TECHNOLOGY

9153 1Q  Development of hot-electron THz bolometric mixers using MgB₂ thin films [9153-62]
D. Cunnane, J. Kawamura, B. S. Karasik, Jet Propulsion Lab. (United States); M. A. Wolak, X. X. Xi, Temple Univ. (United States)

9153 1R  A 4.7THz heterodyne receiver for a balloon borne telescope [9153-63]
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