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J. A. Brevik, R. W. Aikin, California Institute of Technology (United States); M. Amiri, The Univ. of British Columbia (Canada); S. J. Benton, Univ. of Toronto (Canada); J. J. Bock, Jet Propulsion Lab. (United States) and California Institute of Technology (United States); J. A. Bonetti, Jet Propulsion Lab. (United States); B. Burger, The Univ. of British Columbia (Canada); C. D. Dowell, Jet Propulsion Lab. (United States) and California Institute of Technology (United States); L. Duband, Service des Basses Temperature, DRFMC, CEA-Grenoble (France); J. P. Filippini, S. R. Golwala, California Institute of Technology (United States); M. Halpern, M. Hasselfield, The Univ. of British Columbia (Canada); G. Hilton, National Institute of Standards and Technology (United States); V. V. Hristov, California Institute of Technology (United States); K. Irwin, National Institute of Standards and Technology (United States); J. P. Kaufman, B. G. Keating, Univ. of California, San Diego (United States); J. M. Kovac, Harvard-Smithsonian Ctr. for Astrophysics (United States); C. L. Kuo, Stanford Univ. (United States) and Kavli Institute for Particle Astrophysics and Cosmology (United States); A. E. Lange, California Institute of Technology (United States); E. M. Leitch, The Univ. of Chicago (United States); C. B. Netterfield, Univ. of Toronto (Canada); H. T. Nguyen, Jet Propulsion Lab. (United States) and California Institute of Technology (United States); R. W. Ogburn IV, Stanford Univ. (United States) and Kavli Institute for Particle Astrophysics and Cosmology (United States); A. Orlando, California Institute of Technology (United States); C. Pryke, Univ. of Minnesota (United States); C. Reintsema, National Institute of Standards and Technology (United States) and Jet Propulsion Lab. (United States); C. R. Pryke, The Univ. of Chicago (United States) and Univ. of Minnesota (United States); Z. Staniszkiewicz, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); R. Sudiwala, Univ. of Wales (United Kingdom); J. E. Tolan, Stanford Univ. (United States) and Kavli Institute for Particle Astrophysics and Cosmology (United States); A. D. Turner, P. Wilson, Jet Propulsion Lab. (United States); C. L. Wong, Harvard-Smithsonian Ctr. for Astrophysics (United States)

7741 11  The C-Band All-Sky Survey: instrument design, status, and first-look data [7741-54]
O. G. King, California Institute of Technology (United States); C. Copley, Univ. of Oxford (United Kingdom) and Hartebeesthoek Radio Astronomy Observatory (United Kingdom); R. Davies, R. Davis, C. Dickinson, Univ. of Manchester (United Kingdom); Y. A. Hafez, KACST (Saudi Arabia); C. Holler, Hochschule Esslingen (Germany); J. J. John, Univ. of Oxford (United Kingdom)
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7741 1L The cryomechanical design of MUSIC: a novel imaging instrument for millimeter-wave astrophysics at the Caltech Submillimeter Observatory [7741-56]
M. I. Hollister, N. G. Czakon, California Institute of Technology (United States); P. K. Day, Jet Propulsion Lab. (United States); T. P. Downes, R. Duan, California Institute of Technology (United States); J. Gao, National Institute of Standards and Technology (United States); J. Glenn, Univ. of Colorado at Boulder (United States); S. R. Golwala, California Institute of Technology (United States); H. G. LeDuc, Jet Propulsion Lab. (United States); P. R. Maloney, Univ. of Colorado at Boulder (United States); B. A. Mazin, Univ. of California, Santa Barbara (United States); H. T. Nguyen, Jet Propulsion Lab. (United States); O. Noroozian, California Institute of Technology (United States); J. Sayers, Jet Propulsion Lab. (United States); J. Schlaerth, Univ. of Colorado at Boulder (United States); S. Siegel, California Institute of Technology (United States); J. E. Vaillancourt, SOFIA/USRA, NASA Ames Research Ctr. (United States); A. Vayonakis, California Institute of Technology (United States); P. Wilson, Jet Propulsion Lab. (United States); J. Zmuidzinas, California Institute of Technology (United States)

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J. E. Gudmundsson, 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); R. Bihary, Case Western Reserve Univ. (United States); J. J. Bock, Jet Propulsion Lab. (United States) and California Institute of Technology (United States); J. R. Bond, Univ. of Toronto (Canada); J. A. Bonetti, Jet Propulsion Lab. (United States); S. A. Bryan, Case Western Reserve Univ. (United States); B. Burger, The Univ. of British Columbia (Canada); H. C. Chiang, Princeton Univ. (United States); C. R. Cantaldi, Imperial College London (United Kingdom); B. P. Crill, O. Doré, Jet Propulsion Lab. (United States) and California Institute of Technology (United States); M. Farhang, Univ. of Toronto (Canada); J. Filippini, California Institute of Technology (United States); L. M. Fissel, N. N. Gandillo, Univ. of Toronto (Canada); S. R. Golwala, California Institute of Technology (United States); M. Halpern, M. Hasselfield, The Univ. of British Columbia (Canada); G. Hilton, National Institute of Standards and Technology (United States); W. Holmes, Jet Propulsion Lab. (United States); V. V. Hristov, California Institute of Technology (United States); K. D. Irwin, National Institute of Standards and Technology (United States); W. C. Jones, Princeton Univ. (United States); C. L. Kuo, Stanford Univ. (United States); C. J. MacTavish, Univ. of Cambridge (United Kingdom); P. V. Mason, California Institute of Technology (United States); T. E. Montroy, Case Western Reserve Univ. (Canada); T. A. Morford, California Institute of Technology (United States); C. B. Netterfield, Univ. of Toronto (Canada); D. T. O'Dea, Imperial College London
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J. P. Filippini, California Institute of Technology (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); R. Bihary, Case Western Reserve Univ. (United States); J. J. Bock, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); J. R. Bond, Univ. of Toronto (Canada); J. A. Bonetti, Jet Propulsion Lab. (United States); S. A. Bryan, Case Western Reserve Univ. (United States); B. Burger, The Univ. of British Columbia (Canada); H. C. Chiang, Princeton Univ. (United States); 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, L. M. Fissel, N. N. Gandilo, Univ. of Toronto (Canada); S. R. Golwala, California Institute of Technology (United States); J. E. Gudmundsson, Princeton Univ. (United States); M. Halpern, M. Hasselfield, The Univ. of British Columbia (Canada); G. Hilton, National Institute of Standards and Technology (United States); W. Holmes, Jet Propulsion Lab. (United States); V. V. Hristov, California Institute of Technology (United States); K. D. Irwin, National Institute of Standards and Technology (United States); W. C. Jones, Princeton Univ. (United States); C. L. Kuo, Stanford Univ. (United States); C. J. MacTavish, Imperial College London (United Kingdom); P. V. Mason, California Institute of Technology (United States); T. E. Montroy, Case Western Reserve Univ. (United States); T. A. Morford, California Institute of Technology (United States); C. B. Netterfield, Univ. of Toronto (Canada); D. T. O'Dea, Imperial College London (United Kingdom); A. S. Rahlin, Princeton Univ. (United States); C. D. Reintsema, National Institute of Standards and Technology (United States); J. E. Ruhl, Case Western Reserve Univ. (United States); M. C. Runyan, M. A. Schenker, California Institute of Technology (United States); J. A. Shariff, J. D. Soler, Univ. of Toronto (Canada); A. Trangsrud, California Institute of Technology (United States); C. Tucker, Imperial College London (United Kingdom); R. S. Tucker, California Institute of Technology (United States); A. D. Turner, Jet Propulsion Lab. (United States)

7741 1O  Design and performance of the SPIDER instrument [7741-59]
M. C. Runyan, California Institute of Technology (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); R. Bihary, Case Western Reserve Univ. (United States); J. J. Bock, California Institute of Technology (United States) and Jet Propulsion Lab. (United States); J. R. Bond, Univ. of Toronto (Canada); J. A. Bonetti, Jet Propulsion Lab. (United States); S. A. Bryan, Case Western Reserve Univ. (United States); B. Burger, The Univ. of British Columbia (Canada); H. C. Chiang, Princeton Univ. (United States); 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, L. M. Fissel, N. N. Gandilo, Univ. of Toronto (Canada); S. R. Golwala, California Institute of Technology (United States); J. E. Gudmundsson, Princeton Univ. (United States); M. Halpern, M. Hasselfield, The Univ. of British Columbia (Canada); G. Hilton, National Institute of Standards and Technology (United States); W. Holmes, Jet Propulsion Lab. (United States); V. V. Hristov, California Institute of Technology (United States); K. D. Irwin, National Institute of Standards and Technology (United States); W. C. Jones, Princeton Univ. (United States); C. L. Kuo, Stanford Univ. (United States); C. J. MacTavish, Imperial College London (United Kingdom); P. V. Mason, California Institute of Technology (United States); T. E. Montroy, Case Western Reserve Univ. (United States); T. A. Morford, California Institute of Technology (United States); C. B. Netterfield, Univ. of Toronto (Canada); D. T. O'Dea, Imperial College London (United Kingdom); A. S. Rahlin, Princeton Univ. (United States); C. D. Reintsema, National Institute of Standards and Technology (United States); J. E. Ruhl, Case Western Reserve Univ. (United States); M. C. Runyan, M. A. Schenker, California Institute of Technology (United States); J. A. Shariff, J. D. Soler, Univ. of Toronto (Canada); A. Trangsrud, California Institute of Technology (United States); C. Tucker, Imperial College London (United Kingdom); R. S. Tucker, California Institute of Technology (United States); A. D. Turner, Jet Propulsion Lab. (United States)
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5,120 superconducting bolometers for the PIPER balloon-borne CMB polarization experiment


The Keck Array: a pulse tube cooled CMB polarimeter

C. D. Sheehy, P. A. R. Ade, A. J. Kogut, G. M. Stiehl

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and Technology (United States); W. Holmes, Jet Propulsion Lab. (United States); V. V. Hristov, California Institute of Technology (United States); K. D. Irwin, National Institute of Standards and Technology (United States); W. C. Jones, Princeton Univ. (United States); C. L. Kuo, Stanford Univ. (United States); C. J. MacTavish, Univ. of Cambridge (United Kingdom); P. V. Mason, T. A. Morford, California Institute of Technology (United States); T. E. Montroy, Case Western Reserve Univ. (United States); C. B. Nettler, Univ. of Toronto (Canada); A. S. Rahlin, Princeton Univ. (United States); C. D. Reintsema, National Institute of Standards and Technology (United States); J. E. Ruhl, Case Western Reserve Univ. (United States); M. A. Schenker, California Institute of Technology (United States); J. Shariff, J. D. Soler, Univ. of Toronto (Canada); A. Trangsrud, R. S. Tucker, California Institute of Technology (United States); C. Tucker, Cardiff Univ. (United Kingdom); A. Turner, Jet Propulsion Lab. (United States)
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M. D. Niemack, National Institute of Standards and Technology (United States); P. A. R. Ade, Cardiff Univ. (United Kingdom); J. Aguirre, Univ. of Pennsylvania (United States); F. Barrientos, Pontificia Univ. Católica (Chile); J. A. Beall, National Institute of Standards and Technology (United States); J. R. Bond, Univ. of Toronto (Canada); J. Britton, H. M. Cho, National Institute of Standards and Technology (United States); S. Das, Univ. of California, Berkeley (United States); M. J. Devlin, S. Dicker, Univ. of Pennsylvania (United States); J. Dunkley, Oxford Univ. (United Kingdom); R. Dünner, Pontificia Univ. Católica (Chile); J. W. Fowler, Princeton Univ. (United States); A. Hajian, Univ. of Toronto (Canada); M. Halpern, M. Hasselfield, Univ. of British Columbia (United States); G. C. Hilton, National Institute of Standards and Technology (United States); M. Hilton, Univ. of KwaZulu-Natal (South Africa); J. Hubmayr, National Institute of Standards and Technology (United States); J. P. Hughes, Rutgers Univ. (United States); L. Infante, Pontificia Univ. Católica (Chile); K. D. Irwin, National Institute of Standards and Technology (United States); N. Jarosik, Princeton Univ. (United States); J. Klein, Univ. of Pennsylvania (United States); A. Kosowsky, Univ. of Pittsburgh (United States); T. A. Marriage, Princeton Univ. (United States); J. McMahoon, Univ. of Michigan (United States); F. Menanteau, Rutgers Univ. (United States); K. Moodley, Univ. of KwaZulu-Natal (South Africa); J. P. Nibarger, National Institute of Standards and Technology (United States); M. R. Nolta, Univ. of Toronto (Canada); L. A. Page, Princeton Univ. (United States); B. Partridge, Haverford College (United States); E. D. Reese, Univ. of Pennsylvania (United States); J. Sievers, Univ. of Toronto (Canada); D. N. Spergel, S. T. Staggs, Princeton Univ.
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F. Aubin, McGill Univ. (Canada); A. M. Aboobaker, Univ. of Minnesota (United States); P. Ade, Cardiff Univ. (United Kingdom); C. Baccigalupi, Scuola Internazionale Superiore di Studi Avanzati (Italy); C. Bao, Univ. of Minnesota (United States); J. Borill, C. Cantalupo, Lawrence Berkeley National Lab. (United States); D. Chapman, J. Didier, Columbia Univ. (United States); M. Dobos, McGill Univ. (Canada); W. Grainger, Cardiff Univ. (United Kingdom); S. Hanany, Univ. of Minnesota (United States); J. Hubmayr, National Institute of Standards and Technology (United States); P. Hyland, McGill Univ. (Canada); S. Hillbrand, Columbia Univ. (United States); A. Jaffe, Imperial College London (United Kingdom); B. Johnson, Univ. of California, Berkeley (United States); T. Jones, Univ. of Minnesota (United States); T. Klsner, Lawrence Berkeley National Lab. (United States); J. Klein, Univ. of Minnesota (United States); A. Korotkov, Brown Univ. (United States); S. Leach, Scuola Internazionale Superiore di Studi Avanzati (Italy); A. Lee, Univ. of California, Berkeley (United States); M. Limon, Columbia Univ. (United States); K. MacDermid, McGill Univ. (Canada); T. Matsumura, California Institute of Technology (United States); X. Meng, Univ. of California, Berkeley (United States); A. Miller, Columbia Univ. (United States); M. Milligan, D. Poisgrove, Univ. of Minnesota (United States); N. Ponthieu, Univ. Paris-Sud (France); K. Raach, Univ. of Minnesota (United States); B. Reichborn-Kjennerud, Columbia Univ. (United States); I. Sagiv, Univ. of Minnesota (United States); G. Smecher, McGill Univ. (Canada); H. Tran, Univ. of California, Berkeley (United States); G. S. Tucker, Y. Vinokurov, Brown Univ. (United States); A. Yadav, M. Zaldarriaga, Institute for Advanced Study (United States); K. Zilic, Univ. of Minnesota (United States)

7741 1V An open-source readout for MKIDs [7741-67]
R. Duan, California Institute of Technology (United States); S. McHugh, Univ. of California, Santa Barbara (United States); B. Serfass, Univ. of California, Berkeley (United States); B. A. Mazin, A. Merrill, Univ. of California, Santa Barbara (United States); S. R. Golwala, T. P. Downes, N. G. Czakon, California Institute of Technology (United States); P. K. Day, Jet Propulsion Lab. (United States); J. Gao, National Institute of Standards and Technology (United States); J. Glenn, Univ. of Colorado at Boulder (United States); M. I. Hollister, California Institute of Technology (United States); H. G. Leduc, Jet Propulsion Lab. (United States); P. R. Maloney, Univ. of Colorado at Boulder (United States); O. Noroozian, California Institute of Technology (United States); H. T. Nguyen, J. Sayers, Jet Propulsion Lab. (United States); J. A. Schlaerth, Univ. of Colorado at Boulder (United States); S. Siegel, California Institute of Technology (United States); J. E. Vaillancourt, Stratospheric Observatory for Infrared Astronomy (United States); A. Vayonakis, California Institute of Technology (United States); P. R. Wilson, Jet Propulsion Lab. (United States); J. Zmuidzinas, California Institute of Technology (United States)
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N. Jethava, NASA Goddard Space Flight Ctr. (United States) and Global Science and Technology (United States); J. Chervenak, NASA Goddard Space Flight Ctr. (United States); A.-D. Brown, NASA Goddard Space Flight Ctr. (United States) and MEI Technologies, Inc. (United States); D. Benford, G. Kletetschka, NASA Goddard Space Flight Ctr. (United States); V. Mikula, NASA Goddard Space Flight Ctr. (United States) and Catholic Univ. of America (United States); K. U-yen, NASA Goddard Space Flight Ctr. (United States)

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<td>D. Henke, S. Claude, F. Jiang, National Research Council Canada (Canada); D. Dousset, Ecole Polytechnique de Montréal (Canada); F. Rossi, Univ. of Victoria (Canada)</td>
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<td>P. Kaufmann, Univ. Presbiteriana Mackenzie (Brazil) and Univ. Estadual de Campinas (Brazil); R. Marcon, Univ. Estadual de Campinas (Brazil) and Observatório Solar Bernard Lyot (Brazil); A. Marun, Complejo Astronómico El Leoncito (Argentina); A. S. Kudaka, Univ. Presbiteriana Mackenzie (Brazil); E. Bortolucci, M. B. Zaks, J. A. Diniz, Univ. Estadual de Campinas (Brazil); M. M. Cassiano, Univ. Presbiteriana Mackenzie (Brazil); P. Pereyra, R. Godoy, Complejo Astronómico El Leoncito (Argentina); A. V. Timofeevsky, V. A. Nikolaev, Tydex JS Co. (Russian Federation); A. M. Pereira Alves da Silva, Univ. Estadual de Campinas (Brazil); L. O. T. Fernandes, Univ. Presbiteriana Mackenzie (Brazil)</td>
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<td>G. Valente, T. Pisanu, P. Bolli, INAF, Cagliari Astronomy Observatory (Italy); S. Mariotti, INAF, Radio Astronomy Institute (Italy); P. Marongiu, A. Navarrini, INAF, Cagliari Astronomy Observatory (Italy); R. Nesti, INAF, Arcetri Astrophysical Observatory (Italy); A. Orfei, J. Roda, INAF, Radio Astronomy Institute (Italy)</td>
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<td>R. E. Kinzer, Jr., NASA Goddard Space Flight Ctr. (United States) and Oak Ridge Associated Univs. (United States); S. Rinehart, D. Benford, E. Dwek, R. Henry, J. Nuth, R. Silverberg, NASA Goddard Space Flight Ctr. (United States); C. Wheeler, Univ. of Maryland, College Park (United States); E. Wollack, NASA Goddard Space Flight Ctr. (United States)</td>
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<td>L. Zeng, C. L. Bennett, The Johns Hopkins Univ. (United States); D. T. Chuss, E. J. Wollack, NASA Goddard Space Flight Ctr. (United States)</td>
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A. D. Brown, NASA Goddard Space Flight Ctr. (United States) and MEI Technologies, Inc. (United States); D. T. Chuss, J. A. Chervenak, R. M. Henry, S. H. Moseley, E. J. Wollack, NASA Goddard Space Flight Ctr. (United States)

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C. Groppi, Arizona State Univ. (United States); A. Navarrini, INAF, Osservatorio Astronomico di Cagliari (Italy); G. Chattopadhyay, Jet Propulsion Lab. (United States)

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