

CURRICULUM VITAE

Christopher Emil Groppi

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Education:

- Ph.D. in Astronomy with minor in Electrical and Computer Engineering, University of Arizona, 2003
- B.A. with Honor in Astronomy, Cornell University, 1997

Employment:

- Associate Professor, Arizona State University School of Earth and Space Exploration: 2015-present
- Assistant Professor, Arizona State University School of Earth and Space Exploration: 2009-2015
- Director, SESE Micromachining Laboratory (Recharge Center): 2009-present
- National Science Foundation Astronomy and Astrophysics Postdoctoral Fellow: 2006-2009
- Assistant Staff Astronomer, Steward Observatory, 2004-2009
- Director's Postdoctoral Research Associate, National Radio Astronomy Observatory, 2003-2005
- NASA Graduate Student Research Program Fellow, 2000-2002
- Graduate Research Assistant, University of Arizona, 1997-2003

Teaching at ASU:

Unless otherwise noted, C. Groppi was the sole instructor of record for the courses listed here. For available teaching evaluations, scores are the response to the evaluation survey question *How would you rate the overall effectiveness of the instructor?* A score of 5 is highest, 1 lowest. Average teaching score weighted by enrollment: 4.55. Average score weighted per course: 4.73. Evaluations are not compiled by ASU for seminars and individual instruction courses.

- Instructor, AST533, Stars/Interstellar Medium III, Spring 2015
Enrollment: 11, Mean Teaching Evaluation: 3.5/5
- Instructor, SES411, Senior Exploration Project II, Spring 2015
Enrollment: 21, Mean Teaching Evaluation: 4.9/5
- Fall 2015: Sabbatical
- Instructor, AST112, Stars, Galaxies and Cosmology, Spring 2015
Enrollment: 169, Mean Teaching Evaluation: 4.7/5
- Instructor, SES330, Practical Electronics and Instrumentation, Fall 2014
Enrollment: 12, Mean Teaching Evaluation: n/a
- Instructor, AST523, Stars and the Interstellar Medium III, Spring, 2014
Enrollment: 16, Mean Teaching Evaluation: 4.9/5
- Instructor (co-taught), AST499/AST590, LOFAR Seminar, Spring, 2014
Enrollment: 4, Mean Teaching Evaluation: n/a

Mentoring:

Current Graduate Students:

- Kristina Davis, Thesis advisor. Ph.D. Student, Exploration Systems Design. Expected graduation 2017

- Caleb Wheeler: Thesis advisor. Ph.D. Student, Astrophysics. Graduated November 2016
- Gennady Pilyavsky: Second Project advisor. Ph.D. Student, Astrophysics. Expected graduation 2019
- Samuel Gordon, Second Project advisor. Ph.D. Student, Astrophysics. Expected graduation 2019
- Tianxing Jiang, Second Project advisor. Ph.D. Student, Astrophysics. Expected graduation 2019
- Marko Neric, Second Project advisor. Ph.D. Student, Astrophysics. Expected graduation 2020

Current Undergraduate Students:

- James Cornelison, Undergraduate researcher, Physics, graduated 2015, now working as lab assistant.
- Davis Burk, Honors Thesis advisor, Mechanical and Aerospace Engineering, expected graduation 2016.
- Shane Dombrowski, Honors Thesis advisor, Mechanical and Aerospace Engineering, expected graduation 2016.
- Tim McMillen, Undergraduate researcher, Physics, expected graduation 2017.
- Lance Xu, Undergraduate researcher, Physics, expected graduation 2017.
- Stephanie Booth. Undergraduate researcher, Mechanical Engineering, expected graduation 2017.

Current Postdocs:

- Karen Knierman: Co-Advisor. National Science Foundation Astronomy and Astrophysics Postdoctoral Fellow, School of Earth and Space Exploration, ASU

Current Employees:

- Matt Underhill: Supervisor. Engineer for SESE Micromachining Center
- Hamdi Mani: Supervisor. Engineer for SESE long wavelength instrumentation group
- Justin Mathewson: Supervisor. Electronics technician for SESE long wavelength instrumentation group

Former Graduate Students:

- Siddhartha Sirsi: Thesis advisor. M.S. Student, Electrical Engineering. Graduated 2014

Former Undergraduate Students:

- Alex Munoz: Advisor. Undergraduate researcher, Physics. Graduated 2015 (now a graduate student at the University of Oregon Department of Physics).

Education and Public Outreach:

- Barrett Honors Thesis advisor for Davis Burk and Shane Dombrowski, 2015-present.
- SESE Graduate Professor of the Year, 2013-2014 (as voted by SESE graduate students)
- Intel International Science and Engineering Fair Special Awards Lead Judge for the American Astronomical Society/Astronomical Society of the Pacific award, 2014-present
- Barrett Honors Thesis advisor for Linda Kuenzi and Margaret Blumm, 2013-2014
- Lead SESE instrument prototyping lab tour and demonstration for Night of the Open Door, 2014
- Mentor for Camp SESE activity: *Build your own AM radio*, led by graduate student Kristina Davis, 2015 and 2016
- Mentor for SESE ESE Day activity: *Build your own AM radio*, led by graduate student Kristina Davis, 2013-2014
- NASA Spacegrant research mentor, Summer 2010-present
- Research mentor for undergraduate researchers, 2009-present
- Cognizant faculty member for SESE Student Radio Telescope, 2009-present

Service at ASU:

- Chair of the OKED Instrument Design & Fabrication Core Facility Governance Board 2016-present
- SESE Undergraduate recruiting sub-committee, 2016-present
- Member of Earth Observing TeamLA group, 2016-present
- Chair of SESE SmallSats faculty search committee, 2016-present
- Chair of the SESE graduate student recruiting sub-committee, 2014-2015
- Chair of the College of Liberal Arts and Sciences Mechanical Instrument Shop faculty advisory committee, 2014-2016
- Member of the SESE graduate student recruiting sub-committee, 2012-2015
- Organizer for SESE Engineering Coffee weekly meeting series, 2010-present
- Qualifying exam committee member for 13+ SESE students, chair of 6+ committees, 2010-present
- Member of the ad-hoc curriculum committee for the Exploration Systems Design concentration of the Earth and Space Exploration BS degree, 2009-present

Service to the Broader Community:

- Review Panel Member for NRAO ALMA technology development studies, 2016 (~5 proposals)
- Review Panel Member for the NASA SOFIA Cycle 4 Time Allocation Committee, 2015 (~30 proposals)
- Review Panel Member for the NASA SOFIA Cycle 3 Time Allocation Committee, 2014 (~30 proposals)
- International Advisory Committee chair, topic chair and member of the local organizing committee of the 38th International Conference on Infrared, Millimeter and THz Waves, 2013-2014.
- Reviewer for IEEE Transactions on Terahertz Science and Technology, 2011-present (~10 papers per year)
- Review panel member for NASA NPP fellowships, 2010-present (~10 proposals per year)
- Reviewer for the International Journal of Infrared, Millimeter and THz Waves, 2010-present (3+ papers per year)

Professional Societies:

- Member, American Astronomical Society, 1997-present
- Member, International Union of Radio Science (URSI), 2005-present

Awards and Honors:

- SESE Graduate Professor of the Year, 2013-2014
- National Science Foundation Astronomy and Astrophysics Postdoctoral Fellowship 2006-2009
- Jamieson Astronomy Graduate Award, 2002
- Eleanor and Anthony DeFrancis Fellowship, 2002
- NASA Graduate Student Research Fellowship 2000-2002
- Phi Beta Kappa Society, 1997

Collaborations:

1. PI and project leader for the Kilopixel Array Pathfinder Project, an NSF funded technology development program. This is a collaboration of 4 institutions.

2. Science and Instrument Team Member for the Stratospheric Terahertz Observatory, a NASA funded high altitude balloon experiment. This is a collaboration of 10 institutions.
3. Instrument Team Lead and Science Team Member for Supercam, a NSF-MRI funded terahertz imaging spectrometer for the Heinrich Hertz Telescope. This is a collaboration of 4 institutions.
4. Science and Instrument Team Member for GUSTO! (The Gal/Xgal U/LDB Spectroscopic/Stratospheric Terahertz Observatory), a NASA Explorer Mission of Opportunity selected for a Phase-A Concept Study. This is a collaboration of 13 institutions.
5. Science and Technology working group member for Harvard CfA/ASIAA(Taiwan)'s Greenland Telescope project.
6. Instrument Team member for Super-BLASTPol, a NASA funded high altitude balloon experiment. This is a collaboration of 6 institutions.

Public Outreach Invited Talks:

1. Desert Foothills Library, Cave Creek, AZ: *The Very Large Array*, 4/2014.
2. Arizona Museum of Natural History, Mesa, AZ: *Speed Dating a Scientist*. 3/2014.

Publications:

ASU student authors advised by C. Groppi are underlined in the following publication list. Non-ASU student lead authors are denoted by an asterisk*. Here, "student" denotes student status at the time of original research. Whenever possible, students have served as lead authors for papers written by members of the Groppi group. In the fields of astronomical instrumentation and astrophysics, the first author listed is the lead author of the publication. Authors listed following the lead author are weighted equally in their contribution to the publication.

778 Citations, h-index=15 as of 2/2/17 via Google Scholar.

Google Scholar Page: <http://scholar.google.com/citations?user=ToXmtF0AAAAJ>

Refereed Journal Publications:

- J6. Niemack, M.D., Ade, P.A.R., de Bernardis, F., Boulanger, F., Bryan, S., Devlin, M., Dunkley, J., Eales, S., Gomez, H., **Groppi, C.**, Henderson, S., Hillbrand, S., Hubmayr, J., Mouskoff, P., McMahon, J., Miville-Deschenes, M-A., Pascale, E., Pisano, G., Novak, G., Scott, D., Soler, J., Tucker, C., *BFORE: The B-mode Foreground Experiment*, Journal of Low Temperature Physics, 10.1007/s10909-015-1395-6, pp. 1-8. 2016. (Impact Factor 1.183)
- J5. Bryan, S., Aguirre, J., Che, G., Doyle, S., Flanagan, D., **Groppi, C.**, Johnson, B., Jones, G., Mouskoff, P., McCarrick, H., Monfardini, A., Mroczkowski, T., *WSPEC: A waveguide filter-bank focal plane array spectrometer for millimeter wave astronomy and cosmology*, Journal of Low Temperature Physics, 10.1007/s10909-015-1396-5, pp. 1-9, 2016. (Impact Factor 1.183)
- J4. Dober, B. *, Austermann, J.A., Beall, J.A., Becker, D., Che, G., Cho, H-M., Duff, S.M., Galitzki, N., Gao, J., **Groppi, C.**, Hilton, G.C., Hubmayr, H., Irwin, K.D., McKenney, C.M., Li, D., Lourie, N., Mouskoff, P., Vissers, M.R., Wang, Y., *Optical Demonstration of THz, Dual-Polarization Sensitive Microwave Kinetic Inductance Detectors*, Journal of Low Temperature Physics, 10.1007/s10909-015-1434-3, pp. 1-7, 2016. (Impact Factor 1.183)
- J3. Hubmayr, J., Becker, D., Devlin, M., Dober, B., **Groppi, C.**, Hilton, G.C., Irwin, K.D., Li, D., Mouskoff, P., Pappas, D.P., Vissers, M.R. and Gao, J., *Photon-noise limited sensitivity in titanium nitride kinetic inductance detectors*, Applied Physics Letters, v. 106, no. 7, 2015. (Impact Factor 3.302)

- J2. Galitzki, N.* , Ade, P.A.R., Angile, F.E., Ashton, P., Beall, J.A., Becker, J.A., Bradford, K.J., Che, G., Cho, H-M., Devlin, M.J., Dober, B.J., Fissel, L.M., Fukui, Y., Gao, J., **Groppi, C.E.**, Hillbrand, S., Hilton, G.C., Hubmayr, J., Irwin, K.D., Klein, J., Van Lanen, J., Li, D., Li, Z-Y., Lourie, N.P., Mani, H., Martin, P.G., Mauskopf, P., Fumitaka, N., Novak, G., Pappas, D.P., Pascale, E., Pisano, G., Santos, F.P., Savini, G., Scott, D., Stanchfield, S., Tucker, C., Ullom, J.N., Underhill, M., Vissers, M.R., & Ward-Thompson, D., *The Next Generation BLAST Experiment*, Journal of Astronomical Instrumentation, vol. 3, no. 2, pp. 144001-1 – 144001-16, 2014. (Impact Factor n/a, new journal)
- J1. Johnson, B., Ade, P., Araujo, D., Bradford, K., Chapman, P., Day, P., Didier, J., Doyle, S., Eriksen, H., Flanigan, D., **Groppi, C.**, Hillbrand, S., Jones, G., Limon, M., Mauskopf, P., McCarrick, H., Miller, A., Mroczkowski, T., Reichborn-Kjennerud, B., Smiley, B., Sobrin, S., Wehus, I., Zmuidzinas, J., *The Detector System for the Stratospheric Kinetic Inductance Polarimeter (SKIP)*, Journal of Low Temperature Physics, DOI 10.1007/s10909-013-1014-3, 2014. (Impact Factor 1.183)

Refereed Conference Proceedings:

In the field of astronomical instrumentation, many results are disseminated via papers in peer-reviewed conference proceedings. These publications are listed in a separate category to differentiate them from publications in traditional peer reviewed journals. Each citation listed here is full paper, not a short abstract. The proceedings in which these papers are published are “archival.” They are part of library collections and the papers therein are cited in further results by other researchers. Peer review is provided by either the conference editorial board or anonymous referees. Publications listed in this category are searched by Google Scholar, but not by Web of Science.

- RP13. Cortes-Medellin, G., O'Dougherty, S.*, Walker, C., Goldsmith, P.F., **Groppi, C.**, Smith, S., Bernasconi, P. *Optical design for the large balloon reflector*, Proceedings of SPIE, v. 9906, 99061Y-99061Y-9, 2016.
- RP12. **Groppi, C.E.**, Underhill, M., Farkas, Z., Pelham, D., *Diamond fly cutting of aluminum thermal infrared flat mirrors for the OSIRIS-REx Thermal Emission Spectrometer (OTES) instrument*, Proceedings of SPIE, v. 9912, 99123V-99123V-5, 2016.
- RP11. Wheeler, C.H., Neric, M., **Groppi, C.E.**, Underhill, M., Mani, H., Weinreb, S., Russell, D.S., Kooi, J.W., Lichtenberger, A.W., Walker, C.K., Kulesa, C.A., *Results of using permanent magnets to suppress Josephson noise in the KAPPA SIS receiver*, Proceedings of SPIE, v. 9914, 99141W-99141W-10, 2016.
- RP10. **Groppi, C.E.**, Mauskopf, P.M., Ade, P.A.R., Underhill, M., *Design and measurement of a direct-drillable smooth walled feedhorn at 1.2 THz for the next generation BLASTPol experiment*, Proceedings of SPIE, v. 9914, 99142P-99142P-6, 2016.
- RP9. Galitzki, N.* , Ade, P., Angile, F.E., Ashton, P.* , Austermann, J., Billings, T., Che, G., Cho, H-M., Davis, K., Devlin, M., Dicker, S., Dober, B.J.* , Fissel, L.M., Fukui, Y., Gao, J., Gordon, S., **Groppi, C.E.**, Hillbrand, S., Hilton, G.C., Hubmayr, J., Irwin, K.D., Klein, J., Li, D., Li, Z-Y., Lourie, N.P.* , Lowe, I.* , Mani, H., Martin, P.G., Mauskopf, P., McKenney, C., Nati, F., Novak, G., Pascale, E., Pisano, G., Santos, F.P., Scott, D., Sinclair, A., Soler, J.D., Tucker, C., Underhill, M., Vissers, M., Williams, P., *Instrumental performance and results from testing of the BLAST-TNG receiver, submillimeter optics, and MKID detector arrays*, Proceedings of SPIE, v. 9914, 99140J-99140J-11, 2016.

- RP8. Scowen, P., Veach, T., **Groppi, C.**, Mauskopf, P., Miller, A., *Focal plane actuation to achieve ultra-high resolution on suborbital balloon payloads*, Proceedings of SPIE, v. 9151, 915115-915115-12, 2014.
- RP7. Wheeler, C., **Groppi, C.**, Mani, H., McGarey, P., Kuenzi, L., Weinreb, S., Russell, D., Kooi, J., Lichtenberger, A., Walker, C., Kulesa, C., *The kilopixel array pathfinder project (KAPPA): a 16-pixel integrated heterodyne focal plane array: characterization of the single pixel prototype*, Proceedings of SPIE 9153, 91530K-91530K-8, 2014.
- RP6. Araujo, D., Ade, P., Bond, J., Bradford, K., Chapman, D., Che, G., Day, P., Didier, J., Doyle, S., Eriksen, H., Flanigan, D., **Groppi, C.**, Hillbrand, S., Johnson, B., Jones, G., Limon, M., Miller, A., Mauskopf, P., McCarrick, H., Mroczkowski, A., Reichborn-Kjennerud, B., Smiley, B., Sobrin, J., Wehus, I., Zmuidzinas, J., *Lumped element kinetic inductance detectors for CMB polarization studies*, Proceedings of SPIE, v. 9153, 91530W-91530W-15, 2014.
- RP5. Kuenzi, L., Wheeler, C., Mani, H., **Groppi, C.**, *An automated test system for terahertz receiver characterization*, Proceedings of SPIE, v. 9153, 91532C-91532C-8, 2014.
- RP4. McGarey, P., Mani, H., **Groppi, C.**, Wheeler, C., *A 16 channel flex circuit for cryogenic microwave signal transmission*, Proceedings of SPIE, v. 9153, 91532F-91532F-6, 2014.
- RP3. Davis, K., **Groppi, C.**, Mani, H., Wheeler, C., Walker, C., *A vector network analyzer-based near field scanner for MM-wave and THz receivers*, Proceedings of SPIE, v. 9153, 91533F-91533F-8, 2014.
- RP2. Grimes, P.K., Asada, K., Blundell, R., Burgos, R., Chang, H-H., Chen, M. T., Goldie, D., **Groppi, C.**, Han, C.C., Ho, P. T. P., Huang, Y. D., Inoue, M., Kubo, D., Koch, P., Leech, J., de Lera Acedo, E., Martin-Cocher, P., Nishioka, H., Nakamura, M., Matsushita, S., Paine, S. N., Patel, N., Ra-n, P., Snow, W., Sridharan, T.K., Thomas, C. N., Tong, E., Wang, M-J, Wheeler, C., Withington, S., Yassin, G., and Zeng, L-Z., *Instrumentation for single-dish observations with the Greenland Telescope*, Proceedings of SPIE, v. 9153, 91531V-91531V-11, 2014.
- RP1. Dober, B.J.* , Ade, P.A.R., Ashton, P. Angilè, F.E., Beall, J.A., Becker, D., Bradford, K.J., Che, G., Cho, H-M., Devlin, M.J., Fissel, L.M., Fukui, Y., Galitzki, N., Gao, J., **Groppi, C.E.**, Hillbrand, S., Hilton, G.C., Hubmayr, J., Irwin, K.D., Klein, J., Van Lanen, J., Li, D., Li, Z-Y, Lourie, N.P., Mani, H., Martin, P.G., Mauskopf, P., Nakamura, F., Novak, G., Pappas, D.P., Pascale, E., Savini, G., Scott, D., Santos, F.P., Stanchfield, S., Ullom, J.N., Underhill, M., Vissers, M.R., Ward-Thompson, D., *The next-generation BLASTPol experiment*, Proceedings of SPIE, v. 9153, 91530H-91530H-12, 2014.

Non-refereed Conference Proceedings:

- P10. Liu, X.X.* , Hayton, D.J., Luo, Y.C., Wei, L., Vercruyssen, N., Gao, J.R., **Groppi, C.E.**, *A 2 × 2 array receiver at 1.4 THz based on HEB mixers and a Fourier phase grating local oscillator*, ISSTT 2015: Proceedings of the 26th International Symposium on Space Terahertz Technology, Cambridge, USA, 16-18 March 2015.
- P9. Luo, Y.C.* , Liu, X.X., Hayton, D.J., Wei, L., Gao, J.R., Groppi, C., *Fourier phase grating for THz multi-beam local oscillators*, ISSTT 2015: Proceedings of the 26th International Symposium on Space Terahertz Technology, Cambridge, USA, 16-18 March 2015.

- P8. Lesser, D.* , Walker, C.K., Smith, I.S., Goldsmith, P.F., Cortes, G., Dougherty, S., Swift, B., Kloosterman, J., Honniball, C., Young, A., Peters, W., Kulesa, K., Perry, W., Noll, J., Bernasconi, P., **Groppi, C.** Mani, H., Duffy, B., *10 Meter sub-orbital large balloon reflector (LBR)*, Infrared, Millimeter, and Terahertz waves (IRMMW-THz), 2015 40th International Conference on, 2015.
- P7. Che, W., Bryan, S.A., Underhill, M., Mauskopf, P., **Groppi, C.**, Jones, G., Johnson, B.R., McCarrick, H., Flanigan, D., Day, P., *WSPEC*, ISSTT 2015: Proceedings of the 26th International Symposium on Space Terahertz Technology, Cambridge, USA, 16-18 March 2015.
- P6. Austermann, J., Beall, J., Becker, D., Cho, H-M., Devlin, M., Dober, B., Duff, S., Gao, J., **Groppi, C.**, Hilton, G.C., Hubmayr, H., Irwin, K.D., Li, D., Mauskopf, P., Pappas, D.P., Vale, L., Van Lanen, J., Vissers, M.R., Wang, Y., *Development of background-limited MKID systems for millimeter-wave and far-infrared observations*, ISSTT 2015: Proceedings of the 26th International Symposium on Space Terahertz Technology, Cambridge, USA, 16-18 March 2015.
- P5. Davis, K.K., **Groppi, C.**, Mani, H., Wheeler, C., Walker, C., *A vector network analyzer-based near field scanner for MM-wave and THz receivers*, Infrared, Millimeter, and Terahertz waves (IRMMW-THz), 2014 39th International Conference on, 2014.
- P4. Day, P.K., Eom, B.H., Ledic, H.G., Zmuidzinas, J., **Groppi, C.**, Mauskopf, P., Lamb, J., Woody, D., *Wideband paramps for the millimeter and submillimeter bands*, Infrared, Millimeter, and Terahertz waves (IRMMW-THz), 2014 39th International Conference on, 2014.
- P3. Che, G., Bryan, S., Mauskopf, P., Underhill, M., Mani, H., **Groppi, C.**, *A Waveguide Filter Bank for Millimeter-wave Spectroscopy*, Infrared, Millimeter, and Terahertz waves (IRMMW-THz), 2014 39th International Conference on, 2014.
- P2. Kloosterman, J., Swift, B., Peters, W., Lesser, D., Kulesa, C., Honniball, C., Villegas, C., Schikling, P., Walker, C., **Groppi, C.**, Mani, H., Davis, K., Wheeler, C., Veach, T., Weinreb, S., Kooi, J., Lichtenberger, A., Puetz, P., Narayanan, G., *Engineering and science data from SuperCam: A 64-pixel heterodyne receiver for CO J= 3- 2 at 345 GHz*, Infrared, Millimeter, and Terahertz waves (IRMMW-THz), 2014 39th International Conference on, 2014.
- P1. Walker, C.K., O'Dougherty, S., Duffy, B., Peters, W., Lesser, D., Kulesa, C., Smith, I.S., Noll, J., Goldsmith, P.F. **Groppi, C.E.**, Mani, H. Bernasconi, P., *10 meter sub-orbital large balloon reflector (LBR)*, IEEE Aerospace Conference, 1-8 March 2014, Big Sky Montana, USA, pp. 1-7, 2014.