

CURRICULUM VITAE

AMY E. LOWITZ

CONTACT

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EDUCATION

PhD University of Wisconsin Madison, 2017
Physics
Advisor: Prof. Peter Timbie

MS University of Wisconsin - Madison, 2012
Physics

ScB Brown University, 2009
Physics, with honors

EXPERIENCE

Kavli Institute for Cosmological Physics , University of Chicago Postdoctoral scholar with the South Pole Telescope collaboration, working on: SQUID amplifier testing, millikelvin SQUID readout development. Digital frequency multiplexed TES readout testing, integration, and optimization. TES detector testing and data analysis. Instrumental analysis including pointing models and bolometer mapping.	Mar 2017-present
South Pole Telescope , South Pole, Antarctica (for the University of Chicago) Winter mechanical and electrical engineer for 10-meter telescope.	Jan 2016 - Nov 2016
Timbie Laboratory , University of Wisconsin - Madison Graduate student working on: Kinetic inductance detectors for cosmic microwave background polarimetry. Nanofabrication material- and process- development.	2011 - 2017
MIT Lincoln Laboratory , Lexington, MA Classification algorithm development Statistical validation of missile tracking models	2009-2010
Dell'Antonio Laboratory , Brown University Honors thesis: "Photometric Redshifts for Galaxies in a Lensing Survey"	2008-2009
Page Laboratory , Princeton University Recombination spectrum distortion detection, cryostat construction Cryogenic system repair for the ABS telescope	Summers 2007 - 2008
Tucker Laboratory , Brown University Pointing system rebuild for the BLAST telescope	2008
Valles Laboratory , Brown University Paramecium response to altered-gravity environments	2006-2007

LANGUAGES

English, American Sign Language, French
MATLAB, Python, HTML

SERVICE

Adler Planetarium Astronomy Conversations Lecturer, Chicago, IL	2017-present
Women and Gender Minorities in Physics, Founding Member, UW Madison	2015-2017
IEEE, Chairperson, CSC Student and Recent Graduate Outreach Committee	2013-2014
Wonders of Physics/Physics Fair: Science outreach event, UW-Madison	2011-2015
Expand Your Horizons: Girls' Science Day, UW-Madison	2010-2013
Women in Science and Engineering (WiSE), Brown University	
Member	2005-2009
Peer-mentor	2007-2009
Founder and chairperson of physicsWiSE	2007-2009

TEACHING

Introductory Physics, private tutor	Madison, WI	2011-2015
General Physics, Teaching Assistant	UW Madison	Spring 2011
Physics in the Arts, Teaching Assistant	UW Madison	Fall 2010
MATCH School AP Calculus volunteer tutor	Boston, MA	2009-2010
Introductory calculus tutor	Brown University	2007-2009
Introductory physics tutor	Brown University	2007-2009
Sophia Academy volunteer tutoring	Providence, RI	2007-2008

HONORS

Antarctica Service Medal	2016
NASA Space Technology Research Fellow	2012-2015
IEEE Council on Superconductivity Fellow	2012
Wisconsin Space Grant Fellow	2011-2012
Van Vleck Fellow, University of Wisconsin - Madison	2010
Bachelor of Science with Honors, Brown University	2009

PUBLICATIONS

- J. W. Henning, J.T. Sayre, C. L. Reichardt, P. A. R. Ade, A. J. Anderson, J. E. Austermann, J. A. Beall, A. N. Bender, B. A. Benson, L. E. Bleem, J. E. Carlstrom, C. L. Chang, H. C. Chiang, H-M. Cho, R. Citron, C. Corbett Moran, T. M. Crawford, A. T. Crites, T. de Haan, M. A. Dobbs, W. Everett, J. Gallicchio, E. M. George, A. Gilbert, N. W. Halverson, N. Harrington, G. C. Hilton, G. P. Holder, W. L. Holzapfel, S. Hoover, Z. Hou, J. D. Hrubes, N. Huang, J. Hubmayr, K. D. Irwin, R. Keisler, L. Knox, A. T. Lee, E. M. Leitch, D. Li, A. Lowitz, A. Manzotti, J. J. McMahon, S. S. Meyer, L. Mocuano, J. Montgomery, A. Nadolski, T. Natoli, J. P. Nibarger, V. Novosad, S. Padin, C. Pryke, J. E. Ruhl, B. R. Saliwanchik, K. K. Schaffer, C. Sievers, G. Smecher, A. A. Stark, K. T. Story, C. Tucker, K. Vanderlinde, T. Veach, J. D. Vieira, G. Wang, N. Whitehorn, W. L. K. Wu, V. Yefremenko, **“Measurements of the Temperature and E-Mode Polarization of the CMB from 500 Square Degrees of SPTpol Data.”** *The Astrophysical Journal* 852(2), p. 97 (2018).
- A Mennella, PAR Ade, J Aumont, S Banfi, P Battaglia, ES Battistelli, A Bau, B Belier, D Bennett, L Berge, J Ph Bernard, M Bersanelli, MA Bigot-Sazy, N Bleurvacq, G Bordier, J Brossard, EF Bunn, DP Burke, D Buzi, A Buzzelli, D Cammilleri, F Cavaliere, P Chanical, C Chapron, F Columbro, G Coppi, A Coppolecchia, F Couchot, R D’Agostino, G D’Alessandro, P de Bernardis, G De Gasperis, M De Leo, M De Petris, T Decourcelle, F Del Torto, L Dumoulin, A Etchegoyen, C Franceschet, B Garcia, A Gault, D Gayer, M Gervasi, A Ghribi, M Giard, Y Giraud-Heraud, M Gradziel, L Grandsire, J Ch Hamilton, D Harari, V Haynes, S Henrot-Versille, N Holtzer, F Incardona, J Kaplan, A Korotkov, N Krachmalnicoff, L Lamagna, J Lande, S Loucatos, A Lowitz, V Lukovic, B Maffei, S Marnieros, J Martino, S Masi, A May, M McCulloch, MC Medina, L Mele, S Melhuish, L Montier, A Murphy, D Neel, MW Ng, C O’Sullivan, A Paiella, F Pajot, A Passerini, A Pelosi, C Perbost, O Perdereau, F Piacentini, M Piat, L Piccirillo, G Pisano, D Prele, R Puddu, D Rambaud, O Rigaut, GE Romero, M Salatino, A Schillaci, S Scully, M Stolpovskiy, F Suarez, A Tartari, P Timbie, S Torchinsky, M Tristram, **“QUBIC-The Q&U Bolometric Interferometer for Cosmology-A novel way to look at the polarized Cosmic Microwave Background”** *Proceedings of the EPS Conference on High Energy Physics, July 2017 (accepted for publication)*. arXiv:1801.03730
- A. E. Lowitz, **“Kinetic Inductance Detectors for CMB Polarimetry at 100 GHz”**. PhD Thesis. Defense Dec 2016.
- S Scully, D Burke, C O’Sullivan, D Gayer, M Gradziel, JA Murphy, M De Petris, D Buzi, M Zannoni, A Mennella, M Gervasi, A Tartari, B Maffei, J Aumont, S Banfi, P Battaglia, ES Battistelli, A Bau, B Belier, D Bennet, L Berge, J-Ph Bernard, M Bersanelli, M-A Bigot-Sazy, N Bleurvacq, G Bordier, J Brossard, EF Bunn, D Cammilleri, F Cavaliere, P Chanical, C Chapron, A Coppolecchia, F Couchot, G D’Alessandro, P De Bernardis, T Decourcelle, F Del Torto, L Dumoulin, C Franceschet, A Gault, A Ghribi, M Giard, Y Giraud-Heraud, L Grandsire, JC Hamilton, V Haynes, S Henrot-Versille, N Holtzer, J Kaplan, A Korotkov, J Lande, A Lowitz, S Marnieros, J Martino, S Masi, Mark McCulloch, Simon Melhuish, L Montier, D Neel, MW Ng, F Pajot, A Passerini, C Perbost, O Perdereau, F Piacentini, M Piat, L Piccirillo, G Pisano, D Prele, R Puddu, D Rambaud, O Rigaut, M Salatino, A Schillaci, M

- Stolpovskiy, P Timbie, M Tristram, G Tucker, D Vigano, F Voisin, B Watson, **“Optical design and modelling of the QUBIC instrument, a next-generation quasi-optical bolometric interferometer for cosmology.”** *Proc. SPIE 9914, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VIII*, 99142S (July 19, 2016); doi:10.1117/12.2231717
- A. E. Lowitz, A. D. Brown, and T. R. Stevenson, P. T. Timbie, and E. J. Wollack, **“Design, fabrication, and testing of a TiN/Ti/TiN trilayer KID array for 3 mm CMB observations.”** Proceedings of the 16th International Workshop on Low Temperature Detectors, Grenoble, FR, July 2015. *Journal of Low Temperature Physics*, 184 (2016).
- A Tartari, J Aumont, S Banfi, P Battaglia, ES Battistelli, A Bau, B Belier, D Bennett, L Berge, J Ph Bernard, M Bersanelli, MA Bigot-Sazy, N Bleurvacq, G Bordier, J Brossard, EF Bunn, D Buzi, D Cammilleri, F Cavaliere, P Chaniel, C Chapron, A Coppolecchia, G DAlessandro, P De Bernardis, T Decourcelle, F Del Torto, M De Petris, L Dumoulin, C Franceschet, A Gault, D Gayer, M Gervasi, A Ghribi, M Giard, Y Giraud-Heraud, M Gradziel, L Grandsire, J Ch Hamilton, V Haynes, N Holtzer, J Kaplan, A Korotkov, J Lande, A Lowitz, B Maffei, S Marnieros, J Martino, S Masi, M McCulloch, S Melhuish, A Mennella, L Montier, A Murphy, D Neel, MW Ng, C OSullivan, F Pajot, A Passerini, C Perbost, F Piacentini, M Piat, L Piccirillo, Giampaolo Pisano, D Prle, D Rambaud, O Rigaut, M Salatino, A Schillaci, S Scully, MM Stolpovskiy, P Timbie, G Tucker, D Vigano, F Voisin, B Watson, M Zannoni, **“QUBIC: a Fizeau interferometer targeting primordial B-modes.”** Proceedings of the 16th International Workshop on Low Temperature Detectors, Grenoble, FR, July 2015. *Journal of Low Temperature Physics*, 184 (2016).
- A. E. Lowitz, A. D. Brown, and T. R. Stevenson, P. T. Timbie, and E. J. Wollack, **“Design, fabrication, and testing of lumped element kinetic inductance detectors for 3 mm CMB Observations,”** *Proc. SPIE 9153, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII*, 91532R (July 23, 2014); doi:10.1117/12.2057102.
- A. E. Lowitz, E. M. Barrentine, S. R. Golwala, and P. T. Timbie, **“A Comparison of Fundamental Noise in Kinetic Inductance Detectors and Transition Edge Sensors for Millimeter-wave Applications,”** Proceedings of the 15th International Workshop on Low Temperature Detectors, Pasadena, CA, June 2013. *Journal of Low Temperature Physics*, 176 (2014). DOI 10.1007/s10909-014-1133-5. arXiv1403.3601.
- A. Ghribi, J. Aumont, E. S. Battistelli, A. Bau, L. Berge, J-Ph. Bernard, M. Bersanelli, M-A. Bigot-Sazy, G. Bordier, E. T. Bunn, F. Cavaliere, P. Chaniel, A. Coppolecchia, T. Decourcelle, P. De Bernardis, M. De Petris, A-A. Drilien, L. Dumoulin, M. C. Falvella, A. Gault, M. Gervasi, M. Giard, M. Gradziel, L. Grandsire, D. Gayer, J-Ch. Hamilton, V. Haynes, Y. Giraud-Heraud, N. Holtzer, J. Kaplan, A. Korotkov, J. Lande, A. Lowitz, B. Maffei, S. Marnieros, J. Martino, S. Masi, A. Mennella, L. Montier, A. Murphy, M. W. Ng, E. Olivieri, F. Pajot, A. Passerini, F. Piacentini, M. Piat, L. Piccirillo, G. Pisano, D. Prele, D. Rambaud, O. Rigaut, C. Rosset, M. Salatino, A. Schillaci, S. Scully, C. O’Sullivan, A. Tartari, P. Timbie, G. Tucker, L. Vibert, F. Voisin, B. Watson, M. Zannoni, **“Latest Progress on the QUBIC Instrument,”** Proceedings of the 15th International Workshop on Low Temperature Detectors, Pasadena, CA, June 2013. *Journal of Low Temperature Physics*, 176 (2014). doi:10.1007/s10909-013-1024-1. arXiv1307.5701.

INVITED TALKS

- “Kinetic Inductance Detectors for 100 GHz CMB Polarimetry,”** UCSD Department of Physics, La Jolla, CA, 31 July 2017 (academic talk)
- “Kinetic Inductance Detectors for 100 GHz CMB Polarimetry,”** UIUC Department of Astronomy, Champaign, IL, 9 June 2017 (academic talk)
- “Kinetic Inductance Detectors for 100 GHz CMB Polarimetry,”** Kavli Institute for Cosmological Physics, University of Chicago, Chicago, IL, 17 Mar 2017. (academic talk)
- “The Cosmic Microwave Background,”** Amundsen-Scott South Pole Station Summer Science Lecture Series, South Pole, Antarctica, 6 Nov 2016. (public lecture)
- “Detecting the Cosmic Microwave Background,”** Madison Astronomical Society, Madison, WI, 21 Feb 2015. (public lecture)
- “The Cosmic Microwave Background,”** Madison Astronomical Society, Madison, WI, 10 January, 2014. (public lecture)
- “A Comparison of Fundamental Noise Limits in TESs and MKIDs,”** Keck Institute for Space Studies, 2nd Superconducting Nitride Detector Workshop. Pasadena, CA, 21 February 2012. (academic talk)