

Abigail Goodhue Vieregg

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POSITIONS HELD Professor, Departments of Physics, Astronomy & Astrophysics, Enrico Fermi Institute, Kavli Institute for Cosmological Physics, and the College at the University of Chicago, 2022 –
David N. Schramm Director of the Kavli Institute for Cosmological Physics, 2022 –
Associate Professor, University of Chicago 2019 – 2022
Assistant Professor, University of Chicago 2014 – 2019
NSF Postdoctoral Fellow, Harvard-Smithsonian Center for Astrophysics, 2010 – 2013

EDUCATION University of California, Los Angeles, Ph.D., Physics, 2010
University of California, Los Angeles, M.S., Physics, 2006
Dartmouth College, A.B., Physics, High Honors, Magna Cum Laude, 2004

AWARDS Moore Foundation Experimental Physics Investigator Award, 2022
Presidential Early Career Award for Scientists and Engineers (PECASE), 2019
UChicago Neubauer Faculty Development Fellowship, for Innovative and Effective Teaching, 2018
Cottrell Scholar Award, 2018
NASA Nancy Grace Roman Technology Fellowship for Early Career Researchers, 2017
Alfred P. Sloan Research Fellowship, 2017
Shakti P. Duggal Award, For Early Career Contributions in Cosmic Ray Physics, 2017
NSF Postdoctoral Fellowship, Office of Polar Programs, 2011 – 2013
NASA Earth and Space Sciences Graduate Fellowship (NESSF), 2009 – 2010
Antarctic Service Medal, 2009
Chancellor's Prize and Physics Department Fellowship, UCLA, 2005 – 2009
Physics and Astronomy Francis Sears Faculty Prize, Dartmouth College, 2004
Rufus Choate Scholar, Dartmouth College, 2004
Francis L. Town Scientific Prize in Physics, Dartmouth College, 2002

RESEARCH **Searches for astrophysical ultra-high energy (UHE) neutrinos using radio detection techniques**

- Principal Investigator (PI) of the Payload for Ultrahigh Energy Observations (PUEO), a NASA Pioneers in Astrophysics Long Duration Balloon Mission, scheduled for launch from Antarctica in 2025.
- Co-leader of the Radio Neutrino Observatory in Greenland (RNO-G), a ground-based array at Summit Station in Greenland, first deployment of instrumentation was in 2021.
- Member of IceCube-Gen2 and former Co-Leader of IceCube-Gen2 Radio Working Group.
- Participating in the development of BEACON, an elevated tau neutrino observatory at White Mountain Research Station in California.

Fundamental physics from measurements of B-mode polarization in the Cosmic Microwave Background (CMB)

- CMB-S4 Technical Council Co-Chair (2018-2022), CMB-S4 Executive Team Member (2018-2022); Involved in the development of the reference design and report for the decadal survey, and the development of the baseline design. Small Aperture Telescope Optics co-Lead (L3).
- Collaborator on BICEP2, the Keck Array, BICEP3, and South Pole Observatories Member.

TEACHING **Graduate Students Mentored**

Nat Alden, PhD Student, 2023 –
Scott Mackey, PhD Student, 2022 –
Zach Martin, PhD Student, 2021 –
Rachel Scrandis, PhD Student, 2021 –
Kelli Michaels, Masters Student, 2021 – 2023
Dan Smith, PhD Student, 2018 – 2022
Dan Southall, PhD Student, 2018 – 2022
Kaeli Hughes, PhD student, 2017 – 2022
Andrew Ludwig, PhD Student, 2015 – 2019
Gio Leone (2022-2023), Kuang Wei (2016-2017), Zoheyr Doctor (2014-2015), First Year Graduate Student projects (Physics 335)

Postdoctoral Fellows Mentored

Anna Kofman, Postdoctoral Fellow, 2024 –
Philipp Windischhofer, Grainger Postdoctoral Fellow, 2023 –
Keith McBride, Grainger Postdoctoral Fellow, 2023 –
Christoph Welling, KICP Postdoctoral Fellow, 2022 –
Kaeli Hughes, Postdoctoral Fellow, 2022 – 2023
Eric Oberla, Postdoctoral Fellow, 2015 – 2019, Research Scientist 2019 – 2022, Research Assistant Professor, 2022 –
Cosmin Deaconu, Postdoctoral Fellow, 2015 – 2019, Research Scientist 2019 – 2022, Research Assistant Professor, 2022 –
Nicole Larsen, KICP Fellow, 2016 – 2018
Keith Bechtol, KICP Fellow, 2013 – 2015
Chris Sheehy, KICP Fellow, 2013 – 2016

Undergraduates Mentored

~25 Undergraduates, 5 Senior Thesis Projects
6 Undergraduates have been authors on peer-reviewed papers

Courses Taught

Honors Introductory Mechanics (Physics 141), 2019, 2020, 2021, 2024
Introductory Mechanics (Physics 131), 2015, 2017, 2018
Senior Thesis (Physics 291), 2015 – 2016, 2017 – 2018
Graduate Advanced Methods of Data Analysis (Physics 386), 2015, 2017, 2019, 2021
Advanced Experimental Physics (Physics 334), 2017
Particle Astrophysics (Physics 372), 2023, 2025
Advanced Laboratory Course (Physics 211), 2024

GRANTS AWARDED Co-I: NSF “Collaborative Research: WoU-MMA: Ultrahigh Energy Neutrinos with the Radio Neutrino Observatory in Greenland”, 2023-2025.

- PI: Moore Foundation Experimental Physics Investigators Award, 2022-2027.
- PI: NSF “Collaborative Research: WoU-MMA: New Advances to Enable Multi-Messenger Neutrino Astrophysics with the Radio Neutrino Observatory in Greenland”, 2021-2024.
- PI: NSF “RAPID: Providing real-time communication for the Radio Neutrino Observatory in Greenland,” 2021-2022.
- Co-I: NSF “Collaborative Research: WoU-MMA: Askaryan Radio Array: The World's Forefront Neutrino Astrophysics Program from 100 PeV”, 2021-2024.
- PI: NASA Pioneers in Astrophysics “The Payload for Ultrahigh Energy Observations (PUEO),” 2021-2026.
- PI: PECASE Award, NASA, 2020-2022.
- PI: NASA APRA, “Development of the Payload for Ultra-high Energy Observations (PUEO),” 2020- 2022.
- Senior Investigator: “Mid-scale RI-1 (M1:DP): Consortium proposal for CMB-S4 Design Development, 2019-2022.
- PI: Cottrell Scholar Award, Research Corporation for Science Advancement, 2018-2021.
- PI: NASA Nancy Grace Roman Fellowship, 2018 – 2021.
- Co-I: NASA APRA, “ANITA-5 Bridge Support,” 2019-2020.
- PI: NASA APRA, “Development of an Interferometric Phased Array Trigger for Balloon-Borne Detection of the Highest Energy Cosmic Particles,” 2017 – 2020.
- PI: Sloan Foundation Fellowship, 2017 – 2019.
- PI: NSF Particle Astrophysics, “Radio Detection of the Highest Energy Neutrinos with a Ground-Based Interferometric Phased Array,” 2016 – 2019.
- Co-I: NASA APRA, PI Peter Gorham, U. Hawaii, “Ultra-high Energy Particle Astrophysics with ANITA-4,” 2014—2017.
- Co-I: NSF Physics Frontier Center, PI Michael Turner, “Kavli Institute for Cosmological Physics Pushing Cosmology to the Edge,” 2014 – 2017.

- SERVICE TO THE COMMUNITY Particle Physics Project Prioritization Panel (P5) Member, 2023
 Astronomy and Astrophysics Advisory Committee (AAAC), 2021 – Present
 NASA Balloon Working Group, 2020-2022
 NASA Balloon Roadmap for the Astrophysics 2020 Decadal Survey Working Group, 2018 – 2020
 NASA Physics of the Cosmos Program Analysis Group Executive (PhysPAG EC), 2018 – 2020
 Co-Chair of NASA Inflation Probe SIG and Cosmic Ray SIG, 2018 – 2020
 NSF Office of Polar Programs Advisory Committee, 2017 – 2021
 Co-Organizer of Greenland Radio Neutrino Workshop, Catania, Italy 2018
 ICHEP 2016 Organizing Committee, 2016
 COSMO 2014 Scientific Organizing Committee, 2014
 Various NSF, NASA Review Panels
 Referee for PRL, PRD, NIM, JCAP
- UNIVERSITY SERVICE David N. Schramm Director, Kavli Institute for Cosmological Physics, 2022 –
 Council of the University Senate, 2019 – 2022, 2024 –
 Committee of the Council of the University Senate, 2024 –
 Physics Department Budget & Policy Committee, 2022 –

Astronomy & Astrophysics Department Budget & Policy Committee, 2022 –
KICP Strategic Policy Committee, 2019 – 2020
Physics Department Faculty Search Committee, 2018 – 2019, Chair 2020 – 2021
Physics Department Graduate Admissions Committee, 2020 – 2022
Physics Department Graduate Recruitment Committee, 2016 – 2020
KICP Friday Seminar Committee, 2019 – 2020
Physics Department Teaching Activities Committee, Physics, 2019 – 2020
EFI Fellowship Committee, 2018
EFI Awards Committee, 2022
KICP Fellowship Committee, 2013-2014, 2017 – 2018, Chair 2018, 2020, 2021
KICP Executive Committee, 2017 – 2019
KICP Early Career and Fellows Mentorship Committee, Chair 2014 – 2019
Physical Sciences Division Deanship Advisory (Search) Committee, 2017 – 2018
EFI Events and Workshops Committee, 2017—2018
Physics Department Climate Committee, 2016 – 2018
KICP Colloquium Committee, 2014 – 2015, 2016 – 2018
Chicagoland Collaboration for Women in STEM Planning Committee, 2015 – 2016
Physics Department Graduate Admissions Committee, 2015 – 2016
KICP Physics Frontier Center, Inflation Major Area Leader, 2014 – 2017
Physics Department Friday Lectures Committee, 2014 – 2015

OUTREACH Organizing KICP’s outreach programs, including Space Explorers, 2022 –
Rising Stars in Physics Workshop, Faculty Speaker, 2019
CuWIP (Undergraduate Women in Physics Conference) Panel Speaker, 2019
Adler Planetarium, Astronomy Conversations volunteer, Space Visualization Lab, 2014 – 2019
Expanding Your Horizons (middle school girls), built exoplanet demonstrations, 2017
Alan Alda Communicating Science Workshop Participant, 2013
WorldWide Telescope (WWT) Ambassador, 6-week public middle school program, 2012 – 2015
Telling Your Story, a workshop by Science on the Street and the Cambridge Science Festival, 2012
Discover STEM Reverse Science Fair Contributor, Acton-Boxborough, MA, 2011
Malden Public Library teen program: “Meet South Pole Scientists!” Malden, MA, 2011
Science Club for Girls, school vacation program volunteer, Cambridge, MA, 2011
Blogged from South Pole, McMurdo Station, Taylor Dome, and Greenland 2008 – 2015

PUBLICATIONS h-index: 48, > 11,000 citations

Peer-Reviewed Papers Led by Viereg Group Members:

- 1) K. McDonough, et al. “A Search for AGN Sources of the IceCube Diffuse Neutrino Flux,” arXiv:2307.04194, accepted at JCAP (2024).
- 2) J. Aguilar, et al. “Precision measurement of the index of refraction of deep glacial ice at radio frequencies at Summit Station, Greenland,” arXiv:2304.06181, submitted to Journal of Glaciology (2023).
- 3) D. Southall et al. “Design and initial performance of the prototype of the BEACON instrument for detection of ultrahigh energy particles,” NIM A, Volume 1048 (2023).
- 4) P. Allison et al. “A low-threshold ultrahigh-energy neutrino search with the Askaryan radio Array,” PRD 105:122006 (2022).
- 5) J. Aguilar et al. “In situ, broadband measurement of the radio frequency attenuation length at Summit Station, Greenland,” Journal of Glaciology 68:272 (2022).

- 6) Q. Abarr et al. “The Payload for Ultrahigh Energy Observations (PUEO): A White Paper,” JINST 16 P08035 (2021).
- 7) C. Deaconu et al. “A search for ultrahigh-energy neutrinos associated with astrophysical sources using the third flight of ANITA,” JCAP 4, 17 (2021).
- 8) D. Smith et al. “Revisiting AGN as the Source of IceCube's Diffuse Neutrino Flux,” JCAP 3, 31 (2021).
- 9) D. Smith et al. “Experimental tests of sub-surface reflectors as an explanation for the ANITA anomalous events,” JCAP 4, 16 (2020).
- 10) P. Gorham et al. “Constraints on the ultra-high energy cosmic neutrino flux from the fourth flight of ANITA,” PRD 99, 122001 (2019).
- 11) P. Allison, et al. “Design and Performance of an Interferometric Trigger Array for Radio Detection of High-Energy Neutrinos,” NIM 930, 112-125 (2019).
- 12) C. Deaconu, A. G Vieregg, et al. “Measurements and Modeling of Near-Surface Radio Propagation in Glacial Ice and Implications for Neutrino Experiments,” PRD 98:043010 (2018).
- 13) P. Gorham et al. “Constraints on the diffuse high-energy neutrino flux from the third flight of ANITA,” PRD 98, 022001(2018).
- 14) J. Avva et al. “Development Toward a Ground-Based Interferometric Phased Array for Radio Detection of High Energy Neutrinos,” NIM 869:46-55 (2017).
- 15) A. Connolly and A. Vieregg. “Radio Detection of High Energy Neutrinos.” In “Neutrino Astronomy, Current Status, Future Prospects”, World Scientific. Ed. Gaisser and Karle (2016).
- 16) A. G. Vieregg, K. Bechtol, and A. Romero-Wolf. “A Technique for Detection of PeV Neutrinos Using a Phased Radio Array,” JCAP 2016:02 (2016).
- 17) BICEP2/Keck Array Collaborations. “BICEP2/Keck Array IV: Optical Characterization and Performance of the BICEP2 and Keck Array Experiments,” ApJ 806:2 (2015).
- 18) J. Avva et al. “An In-Situ Measurement of the Radio-Frequency Attenuation in Ice at Summit Station, Greenland,” Journal of Glaciology 61:229 (2015).
- 19) A. G. Vieregg et al. (The ANITA Collaboration), “The First Limits on the Ultra-high Energy Neutrino Fluence from Gamma-ray Bursts,” ApJ 736:50 (2011).
- 20) P. Gorham et al. (The ANITA Collaboration), “Observational Constraints on the Ultra-high Energy Cosmic Neutrino Flux from the Second Flight of the ANITA Experiment”, PRD 82:022004 (2010); Erratum: PRD 85:049901 (2011).
- 21) A. Connolly, A. Goodhue (Vieregg), C. Miki, R. Nichol, D. Saltzberg, “Measurements of Radio Propagation in Rock Salt for the Detection of High-Energy Neutrinos,” NIM A599:184-191 (2009).

Other Peer-Reviewed Publications (Asterisk (*) indicates significant work (e.g. secondary authorship) from Vieregg Group Members):

- 1) S. Agarwal et al. “Solar flare observations with the Radio Neutrino Observatory Greenland (RNO-G)” Submitted to Particle Astrophysics arXiv:2404.14995 (2024).
- 2) *J. Aguilar, et al. “Radiofrequency Ice Dielectric Measurements at Summit Station, Greenland,” arXiv:2212.10285, submitted to J. Glaciology (2022).

- 3) BICEP/Keck Collaboration. “BICEP / Keck XVII: Line of Sight Distortion Analysis: Estimates of Gravitational Lensing, Anisotropic Cosmic Birefringence, Patchy Reionization, and Systematic Errors” *ApJ* 949:43 (2022).
- 4) BICEP/Keck Collaboration. “BICEP / Keck XVI: Characterizing Dust Polarization through Correlations with Neutral Hydrogen,” *ApJ* 945:72 (2023).
- 5) R. Prechelt, “Analysis of a Tau Neutrino Origin for the Near-Horizon Air Shower Events Observed by the Fourth flight of the Antarctic Impulsive Transient Antenna (ANITA),” *PRD* 105:042001 (2022).
- 6) A. Schillaci, “BICEP Array: 150 GHz detector module development”, *Journal of Low Temperature Physics* (2021).
- 7) M. Deirickx, “Plastic Laminate Antireflective Coatings for Millimeter-wave Optics in BICEP Array”, *Journal of Low Temperature Physics* (2021).
- 8) K. Bechtol et al. “The SLAC T-510 experiment for radio emission from particle showers: detailed simulation study and interpretation,” *PRD* 105:063025 (2022).
- 9) BICEP/Keck Array Collaboration: “BICEP / Keck XIII: Improved Constraints on Primordial Gravitational Waves using Planck, WMAP, and BICEP/Keck Observations through the 2018 Observing Season”, *PRL* 127, 151301 (2021).
- 10) BICEP/Keck Array Collaboration: BICEP / Keck XV: The BICEP3 CMB Polarimeter and the First Three Year Data Set”, *ApJ* 927, 77 (2022).
- 11) J. Aguilar et al., “Reconstructing the neutrino energy for in-ice radio detectors” *European Phys. J. C* 82:147 (2021).
- 12) BICEP/Keck Array Collaboration: “BICEP / Keck XIV: Improved constraints on axion-like polarization oscillations in the cosmic microwave background”, *PRD* 103 042002 (2021).
- 13) BICEP/Keck Array Collaboration: “A Demonstration of Improved Constraints on Primordial Gravitational Waves with Delensing,” *PRD* 103, 023004 (2021).
- 14) BICEP/Keck Array Collaboration: “BICEP / Keck XII: Constraints on axion-like polarization oscillations in the cosmic microwave background,” *Phys. Rev. D* 103, 042002 (2021).
- 15) * J. Aguilar et al. “Design and Sensitivity of the Radio Neutrino Observatory in Greenland (RNO-G),” *JINST* 16 P03025 (2021).
- 16) K. Abazajian et al. “CMB-S4: Forecasting Constraints on Primordial Gravitational Waves,” *apJ* 926 54 (2022).
- 17) * P. Gorham et al. “Unusual Near-horizon Cosmic-ray-like Events Observed by ANITA-IV,” *Phys. Rev. Lett.* 126, 071103 (2021).
- 18) IceCube-Gen2 Collaboration: “IceCube-Gen2: The Window to the Extreme Universe,” *J. Phys. G* 48 (2021).
- 19) * S. Wissel et al., “Prospects for high elevation detection of >100 PeV Tau Neutrinos,” *JCAP* 11 065 (2020).
- 20) A. Soliman, “Optical design and characterization of 40-GHz Detector and Module for the BICEP Array,” *Journal of Low Temperature Physics* (2020).
- 21) A. Schillaci, “Design and performance of the first BICEP Array receiver,” *Journal of Low Temperature Physics* (2020).

- 22) C. Zhang, “Characterizing the Sensitivity of 40 GHz TES Bolometers for BICEP Array,” *Journal of Low Temperature Physics* (2020).
- 23) T. St. Germaine, “Optical Characterization of the Keck Array and BICEP3 CMB Polarimeters from 2016 to 2019,” *Journal of Low Temperature Physics* (2020).
- 24) P. Allison et al. “Constraints on the Diffuse Flux of Ultra-high Energy Neutrinos from Four Years of Askaryan Radio Array Data in Two Stations,” *Phys. Rev. D* 102, 043021 (2020).
- 25) A. Cukierman, “Microwave multiplexing on the Keck Array,” *Journal of Low Temperature Physics* (2019).
- 26) P. Allison et al. “Long-baseline horizontal radio-frequency transmission through polar ice,” *JCAP* 12, 9 (2020).
- 27) * D. Hooper et al. “Superheavy Dark Matter and ANITA’s Anomalous Events,” *PRD* 100, 4 (2019).
- 28) C. Glaiser et al. “NuRadioMC: Simulating the radio emission of neutrinos from interaction to detector,” *European Phys. Journal C* 80, 77 (2019).
- 29) BICEP2/Keck Array Collaborations: BICEP2/Keck Array XI: Beam Characterization and Temperature-to-Polarization Leakage in the BK15 Dataset,” *ApJ* 884, 2 (2019).
- 30) * L. Cremonesi et al. “icemc: A Monte Carlo Simulation for Cosmogenic Neutrinos interacting in the Antarctic ice as viewed by the Antarctic Impulsive Transient Antenna (ANITA),” *JINST* 14, 08 (2019).
- 31) A. Romero-Wolf et al. “A comprehensive analysis of anomalous ANITA events disfavors a diffuse tau-neutrino flux origin,” *PRD* 99, 063011 (2019).
- 32) * D. Hooper, T. Linden, and A. G. Vieregg. “Active Galactic Nuclei and the Origin of IceCube’s Neutrino Flux,” *JCAP* 02(2019)012 (2019).
- 33) U. Abdul et al. “Measurement of the real dielectric permittivity of ϵ_r of glacial ice,” *Astroparticle Physics* 108:63-73 (2019).
- 34) BICEP2/Keck Array Collaborations: “BICEP/Keck Array X: Constraints on primordial gravitational waves using Planck, WMAP, and new BICEP2/Keck observations through the 2015 season,” *PRL* 121:221301 (2018).
- 35) P. Allison et al. “Observation of Reconstructable Radio Emission Coincident with an X-Class Solar Flare in the Askaryan Radio Array Prototype Station,” Submitted to *Astroparticle Physics*. arXiv:1807.03335 (2018).
- 36) * P. Gorham et al. “Observation of an Unusual Upward-going Cosmic-ray-like Event in the Third Flight of ANITA,” *PRL* 121:161102 (2018).
- 37) S. Prohira et al. “Antarctic Surface Reflectivity Calculations and Measurements from the ANITA-4 and HiCal-2 Experiments,” *PRD* 98:042004 (2018).
- 38) S. Prohira et al. “HiCal 2: An instrument designed for calibration of the ANITA experiment and for Antarctic surface reflectivity measurements,” *NIM* 918:60-66 (2018).
- 39) P. Allison et al. “Dynamic Tunable Notch Filters for the Antarctic Impulsive Transient Antenna (ANITA),” *NIM* 894:47-56 (2018).
- 40) BICEP2/Keck Array Collaboration, “BICEP2 / Keck Array IX: New Bounds on Anisotropies of CMB Polarization Rotation and Implications for Axion-Like Particles and Primordial Magnetic Fields,” *Phys. Rev. D* 96, 102003 (2017).

- 41) P. Gorham et al. (The ANITA Collaboration), “Antarctic Surface Reflectivity Measurements from the ANITA-3 and HiCal-1 Experiments,” *J. Astron. Inst.* 6 (2017).
- 42) BICEP2/Keck Array Collaboration, “BICEP2/ Keck Array VIII: Measurement of Gravitational Lensing from Large-Scale B-mode Polarization,” *ApJ* 833:2 (2016).
- 43) BICEP2/Keck Array Collaborations. “BICEP2 / Keck Array VII: Matrix based E/B Separation applied to BICEP2 and the Keck Array,” *ApJ* 825:1 (2016).
- 44) * P. Gorham et al. (The ANITA Collaboration), “Characteristics of Four Upward-pointing Cosmic-ray-like Events Observed with ANITA,” *PRL* 117, 071101 (2016).
- 45) BICEP2/Keck Array Collaboration. “Keck Array VI: Improved Constraints on Cosmology and Foregrounds when Adding 95 GHz Data from the Keck Array,” *PRL* 116, 031302 (2016).
- 46) * K. Belov et al. (SLAC T-510 Collaboration). “Accelerator measurements of magnetically-induced radio emission from particle cascades with applications to cosmic-ray air showers,” *PRL* 116, 141103 (2016).
- 47) * A. Romero-Wolf, S. Hoover, A. G. Vieregg, et al. (The ANITA Collaboration). “An Interferometric Analysis Method for Radio Pulses from Ultra-high Energy Particle Showers,” *Astroparticle Physics* 60:72-85 (2015).
- 48) H. Schoorlemmer et al. (The ANITA Collaboration). “Energy and Flux Measurements of Ultra-High Energy Cosmic Rays Observed During the First ANITA Flight,” *Astroparticle Physics* 77, 32-43 (2016).
- 49) K. Wu et al. “Initial Performance of BICEP3: A Degree Angular Scale 95 GHz Band Polarimeter,” *Journal of Low Temperature Physics* (2016).
- 50) BICEP2/Keck Array Collaborations. “BICEP2/Keck Array V: Measurements of B-mode Polarization at Degree Angular Scales and 150 GHz by the Keck Array,” *ApJ* 811:126 (2015).
- 51) P. A. R. Ade, et al. “Antenna-coupled TES bolometers used in BICEP2, Keck Array, and SPIDER,” *ApJ* 802:2 (2015).
- 52) BICEP2/Keck Array/Planck Collaborations. “Joint Analysis of BICEP2/Keck Array and Planck Data,” *PRL* 114:101301 (2015).
- 53) BICEP2 Collaboration. “BICEP2 III: Instrumental Systematics.” *ApJ* 814:2 (2015).
- 54) K.N. Abazajian et al., “Neutrino Physics from the Cosmic Microwave Background and Large Scale Structure,” *Astroparticle Physics* 63 (2015).
- 55) K.N. Abazajian et al., “Inflation Physics from the Cosmic Microwave Background and Large Scale Structure,” *Astroparticle Physics* 63 (2015).
- 56) D. Besson et al. (The ANITA Collaboration), “Antarctic Radio Frequency Albedo and Implications for Cosmic Ray Reconstruction,” *Radio Science* 50:1, 1-17 (2015).
- 57) BICEP2 Collaboration. “BICEP2 II: Experiment and Three-Year Data Set,” *ApJ* 792:62 (2014).
- 58) BICEP2 Collaboration. “BICEP2 I: Detection of B-mode Polarization and Degree Angular Scales,” *PRL* 112, 241101 (2014).
- 59) P. Gorham, et al. “Implications of ultra-high energy neutrino flux constraints for Lorentz-invariance violating cosmogenic neutrinos,” *Phys. Rev. D* 86:103006 (2012).
- 60) Z. Staniszewski et al. “The Keck Array: A Multi Camera CMB Polarimeter at the South Pole,” *Journal of Low Temperature Physics* 162:827-833 (2012).

- 61) M. Detrixhe et al. (The ANITA Collaboration), “Ultra-Relativistic Magnetic Monopole Search with the ANITA-II Balloon-Borne Radio Interferometer,” *Phys. Rev. D* 83:023513 (2011).
- 62) S. Hoover et al. (The ANITA Collaboration), “Observation of Ultra-high Energy Cosmic Rays with the ANITA Balloon-borne Radio Interferometer,” *Phys. Rev. Lett* 105:151101 (2010).
- 63) P. Gorham et al. (The ANITA Collaboration), “New Limits on the Ultra-high Energy Cosmic Neutrino Flux from the ANITA Experiment”, *Phys. Rev. Lett.* 103:051103 (2009).
- 64) P. Gorham et al. (The ANITA Collaboration), “The Antarctic Impulsive Transient Antenna Ultra-high Energy Neutrino Detector Design, Performance, and Sensitivity for 2006-2007 Balloon Flight”, *Astropart. Phys.* 32:10-41 (2009).
- 65) K. Dow et al., “Magnetic Field Measurements of the BLAST Spectrometer”, *Nucl. Instrum. Meth. A* 599:146-151 (2009).
- 66) D. Besson et al. (The ANITA Collaboration), “In Situ Radiological Measurements near Taylor Dome, Antarctica and Implications for UHE Neutrino Astronomy”, *Astropart. Phys.* 29:130-157 (2008).
- 67) P. Gorham et al. (The ANITA Collaboration), “Observations of the Askaryan Effect in Ice”, *Phys. Rev. Lett.* 99:171101 (2007).

Primary Author Whitepapers, Conference Publications, and Proceedings:

- 1) M. Ackermann et al. “Fundamental Physics with High-Energy Cosmic Neutrinos,” Whitepaper submitted to the Astro2020 Decadal Survey (2019), arXiv:1903.04333.
- 2) M. Ackermann et al. “Astrophysics Uniquely Enabled by Observations of High-Energy Cosmic Neutrinos,” Whitepaper submitted to the Astro2020 Decadal Survey (2019), arXiv: 1903.04334.
- 3) A. G. Viereg et al. “Results from the Third flight of ANITA,” Proceedings of ARENA (2018).
- 4) D. Barkats et al. “High-Precision Scanning Water Vapor Radiometers for Cosmic Microwave Background Site Characterization and Comparison,” Proceedings of the SPIE, Volume 10708: Millimeter and Submillimeter Detectors and Instrumentation for Astronomy IX (2018).
- 5) A. G. Viereg et al. “A Ground-based Interferometric Phased Array Trigger for Ultra-high Energy Neutrinos” POS, Proceedings of ICRC (2017).
- 6) A. G. Viereg. “Radio Detection of Ultra-high Energy Neutrinos.” Proceedings of Neutrino 2014 (2014).
- 7) A. G. Viereg and D. Saltzberg, “Greenland Neutrino Observatory (GNO): Radio Detection of Ultra-high Energy Neutrinos at Apex Station in Greenland,” Whitepaper for the Snowmass Process (2013).
- 8) A. G. Viereg et al. “Optical Characterization of the Keck Array Polarimeter at the South Pole,” Proceedings of the SPIE, Volume 8452: Millimeter and Submillimeter Detectors and Instrumentation for Astronomy VI (2012).
- 9) A. G. Viereg et al. (The ANITA Collaboration), “Results from the Search for Ultra High-Energy Neutrinos with the Second Flight of ANITA”, Proceedings of Neutrino 2010 (2010).
- 10) A. G. Viereg et al. (The ANITA Collaboration), “Results from the Search for Ultra High-Energy Neutrinos with the Second Flight of ANITA”, Proceedings of Recontres de Moriond (2010).

Other Selected Publications (Conference Papers on the arXiv and other arXiv Postings):

- 1) BICEP/Keck Array Collaboration: “Constraining Inflation with the BICEP/Keck CMB Polarization Experiments,” Proceedings of Rencontres de Moriond, arXiv:2405.19469 (2024).
- 2) The 2023 Windows on the Universe Workshop White Paper Working Group: “Windows on the Universe: Establishing the Infrastructure for a Collaborative Multi-messenger Ecosystem”, TDAMM Workshop Whitepaper, arXiv:240102063 (2024).
- 3) M. Seikh et al. “Calibration and Physics with ARA Station 1: A Unique Askaryan Radio Array Detector,” Contributions to the 38th International Cosmic Ray Conference (ICRC2023) [arXiv:2308.07292](https://arxiv.org/abs/2308.07292) (2023).
- 4) The IceCube-Gen2 Collaboration -- Contributions to the 38th International Cosmic Ray Conference (ICRC2023), arXiv:2307.13048 (2023).
- 5) J. Cornelison et al. “Improved Polarization Calibration of the BICEP3 CMB Polarimeter at the South Pole,” Proceedings of the SPIE (2022).
- 6) A. Soliman et al. “2022 Upgrade and Improved Low Frequency Camera Sensitivity for CMB Observation at the South Pole,” Proceedings of the SPIE (2022).
- 7) D. Goldfinger et al. “Thermal Testing for Cryogenic CMB Instrument Optical Design,” Proceedings of the SPIE (2022).
- 8) P. Gorham et al. “A Roadmap For Scientific Ballooning 2020-2030,” arXiv:2210.01198 (2022).
- 9) C. Chang et al. “Snowmass 2021 Cosmic Frontier: Cosmic Microwave Background Measurements White Paper” arXiv:2203.07638 (2022).
- 10) K. Abazajan et al. “Snowmass 2021 CMB-S4 White Paper”, arXiv:2203.08024 (2022).
- 11) BICEP/Keck Collaboration. “The latest constraints on inflationary B-modes from the BICEP/Keck Telescopes,” Rencontres de Moriond. arXiv:2203.16556 (2022).
- 12) The IceCube-Gen2 Collaboration -- Contributions to the 37th International Cosmic Ray Conference (ICRC2021), arXiv:2107.06968 (2021).
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COLLOQUIA

Wisconsin Physics Colloquium (2024)
 University of Chicago EFI Colloquium (2024)
 UCLA Physics Colloquium (2024)
 Stanford Astronomy Colloquium (2022)
 University of Chicago EFI Colloquium (2022)
 Max Planck Institute for Radio Astronomy Colloquium (2021)
 Bryn Mawr Colloquium (2021)
 Max Planck (MPIK) Colloquium (2021)
 Columbia Physics Colloquium (2021)
 Stanford Physics Colloquium (2020)
 University of Chicago Physics Colloquium (2018)
 ETH Zurich / University of Zurich Joint Physics Colloquium (2018)
 Boston University Physics Colloquium (2018)
 Wisconsin Physics Colloquium (2018)
 Caltech Astronomy Colloquium (2018)
 University of Delaware Physics Colloquium (2018)
 University of Pennsylvania Physics Colloquium (2018)
 Dartmouth College Physics Colloquium (2018)
 University of Chicago KICP Colloquium (2018)
 Goddard Astrophysics Colloquium (2017)
 MIT Kavli Institute Colloquium (2017)
 Northwestern Physics Colloquium (2017)
 University of Delaware Physics Colloquium (2016)
 University of British Columbia Colloquium (2016)
 Indiana University Physics Colloquium (2015)
 University of Illinois Astronomy Colloquium (2015)
 University of Toronto Astronomy Colloquium (2014)
 Fermilab Wine and Cheese (2014)
 Dartmouth College Colloquium (2014)
 University of Chicago Physics Colloquium (2014)
 Northeastern University Colloquium (2012)

SEMINARS

University of Illinois Seminar (2023)
 MIT LNS Seminar (2022)
 Johns Hopkins Astrophysics Seminar (2018)
 Fermilab Neutrino Seminar (2017)
 Argonne High Energy Physics Seminar (2016)
 TRIUMF Seminar (2016)

Michigan State Astronomy/HEP Seminar (2015)
 Harvard University Physics Seminar (2015)
 Indiana University Physics Seminar (2015)
 Fermilab Astrophysics Seminar (2015)
 University of Chicago HEP Seminar (2014)
 Gran Sasso Seminar (2014)
 Ohio State CCAPP Seminar (2014)
 Cornell HEP Seminar (2014)
 Northwestern University CIERA Seminar (2014)
 Stanford Physics Seminar (2013)
 UCSD CASS Seminar (2013)
 Penn State Astrophysics Seminar (2013)
 University of Chicago Enrico Fermi Institute Seminar (2012)
 McGill University Joint Astrophysics Seminar (2012)
 UCLA HEP Seminar (2012)
 Ohio State CCAPP Seminar (2012)
 Harvard-Smithsonian Center for Astrophysics Seminar (2011)
 Dartmouth College Seminar (2011)
 University of Maryland HEP Seminar (2010)
 University of Chicago KICP Seminar (2010)
 MIT Laboratory for Nuclear Science Seminar (2010)
 UC San Diego CASS Seminar (2010)
 UCLA HEP Seminar (2010)

INVITED CONFERENCE TALKS ICFA Meeting, Future Perspectives in High-Energy Physics, Invited Overview, DESY (2023)
 Windows on the Universe TDAMM Workshop, Invited Talk, Tucson (2023)
 Balloon Technologies Workshop, Invited Talk, Minneapolis (2023)
 Particle Physics and Cosmology, Invited Review Talk, St. Louis (2022)
 TeVPA, Invited Review Talk, Kingston ON (2022).
 VLVNT, Invited Review Talk, Valencia (2021)
 ICRC, Invited Review Talk, Madison (2019)
 PAHEN Invited Plenary Talk, Berlin (2019)
 Penn State IGC@25: Multimessenger Universe, Invited Talk, State College (2019)
 CIFAR Meeting, Invited Talk, Kelowna, Canada (2019)
 American Astronomical Society 232nd Meeting, Invited Talk, Denver (2018)
 TeVPA, Invited Plenary Talk, Columbus (2017)
 CPAD Instrumentation Workshop, Invited Plenary Talk, Caltech (2016)
 American Astronomical Society 227th Meeting, Invited Talk, Kissimmee (2016)
 IceCube Particle Astrophysics Conference, Invited Review Talk, Madison (2015)
 CIFAR Annual Meeting, Invited Talk, Banff, Canada (2015)
 Neutrino 2014, Invited Review Talk, Boston (2014)
 Snowmass, Invited Review Talk, Minneapolis (2013)
 SLAC Snowmass Workshop, Invited Review Talk, Stanford (2013)

CONTRIBUTED TALKS AND CONFERENCE POSTERS ARENA, Chicago (2024)
 ICRC, Berlin/Remote (2021)
 APS April Meeting, Denver (2019)
 ARENA, Catania, Italy (2018)
 TeVPA, Columbus (2017)
 ICRC Busan, Korea (2017)
 APS April Meeting, Savannah (2014)
 SPIE Astronomical Instrumentation, Amsterdam, Netherlands (2012)

Harvard-Smithsonian Center for Astrophysics Postdoc Symposium (2011)
Neutrino 2010, Athens, Greece (2010)
SnowPAC Meeting, Utah (2010)
Recontres de Moriond, La Thuile, Italy (2010)
April American Physical Society Meeting, Washington DC (2010)
California American Physical Society Meeting, Monterey (2009)
American Physical Society April Meeting, St. Louis (2008)