

# Andrea Albert

Los Alamos National Laboratory  
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## Education:

- 2013 The Ohio State University  
Ph.D. in Physics, “*Search for Gamma-ray Spectral Lines with the Fermi Large Area Telescope and Dark Matter Implications*”  
Advisor: Dr. Brian Winer
- 2011 The Ohio State University  
M.S. in Physics
- 2009 Rice University  
B.S. in Astrophysics and Religious Studies

## Research Interests:

Experimental high-energy particle astrophysics.  
Specifically, indirect dark matter searches and the development of particle detectors used in those searches.

## Research Experience:

- 2016 - present Marie Curie Distinguished Postdoctoral Fellow, Los Alamos Laboratory
- 2013-2016 Research Associate, SLAC National Accelerator Laboratory  
“Postdoc” working on Fermi Large Area Telescope data analysis and Cherenkov Telescope Array prototype development
- 2010-13 Graduate Research Assistant, The Ohio State University  
Perform data analysis with Fermi Large Area Telescope
- 2008 Undergraduate Research Assistant, Rice University  
Obtained and analyzed optical data from T-Tauri stars

## Fellowships and Awards:

- 2016 -- present Marie Curie Distinguished Postdoctoral Fellow, Los Alamos Laboratory
- 2011 NSF Graduate Research Fellowship Honorable Mention
- 2009 Center for Cosmology and AstroParticle Physics Summer Research Fellowship
- 2009 Rice University Heaps Prize for Excellence in a Research Project
- 2007-08 Rice University Physics and Astronomy Summer Research Fellowship

## Leadership and Professional Organizations:

- 2016-present Member of the High Altitude Water Cherenkov Observatory Collaboration
- 2009-present Member of Fermi Large Area Telescope Collaboration  
**Coordinator of Dark Matter and New Physics Group 2014-present**
- 2011-present Member of the American Physical Society
- 2009-13 Member of the Center of Cosmology and AstroParticle Physics
- 2009-13 Member of the Ohio State University Graduate Women in Physics  
Advertising Coordinator 2011-13

**Publications (significant contribution in bold):**

1. The HAWC Collaboration *Dark Matter Limits From Dwarf Spheroidal Galaxies with The HAWC Gamma-Ray Observatory* submitted to ApJ arXiv:1706.01277
2. The HAWC Collaboration *Search for Very High Energy Gamma Rays from the Northern Fermi Bubble Region with HAWC* submitted to ApJ arXiv:1703.01344
3. The HAWC Collaboration *The 2HWC HAWC Observatory Gamma Ray Catalog* submitted to ApJ arXiv:1702.02992
4. The HAWC Collaboration *Observation of the Crab Nebula with the HAWC Gamma-Ray Observatory* submitted to ApJ arXiv:1701.01778
5. **The Fermi-LAT Collaboration *The Fermi Galactic Center GeV Excess and Implications for Dark Matter* accepted for publication in ApJ arXiv:1704.03910**
6. The Fermi-LAT Collaboration *Observations of M31 and M33 with the Fermi Large Area Telescope: a galactic center excess in Andromeda?* ApJ 836 2 (2017)
7. The Fermi-LAT Collaboration *Search for Spectral Irregularities due to Photon-Axion-like Particle Oscillations with the Fermi Large Area Telescope* Phys. Rev. Lett. 116, 161101 (2016)
8. The Fermi-LAT Collaboration *Resolving the Extragalactic gamma-ray Background above 50 GeV with Fermi-LAT* Phys. Rev. Lett. 116, 151105 (2016)
9. **The Fermi-LAT and DES Collaborations *Searching for Dark Matter Annihilation in Recently Discovered Milky Way Satellites with Fermi-LAT* ApJ 834 110 (2017)**
10. The Fermi-LAT Collaboration *Search for Gamma-ray Emission from the Coma Cluster with Six Years of Fermi-LAT Data* ApJ 819 149 (2016)
11. The Fermi-LAT Collaboration *Development of the Model of Interstellar Emission for Standard Point-Source Analysis of Fermi Large Area Telescope Data* ApJS 223 26 (2016)
12. The Fermi-LAT Collaboration *Fermi-LAT Observations of High-energy Gamma-ray Emission Toward the Galactic Center* ApJ 819 44 (2016)
13. The Fermi-LAT Collaboration *A Deep View of the Large Magellanic Cloud with 6 Years of Fermi-LAT Observations* A&A 586 71 (2016)
14. The Fermi-LAT Collaboration *Multiwavelength Evidence for Quasi-periodic Modulation in the Gamma-ray Blazar PG 1553+113* ApJ 813 L41 (2015)
15. The Fermi-LAT Collaboration *An Extremely Bright Gamma-ray Pulsar in the Large Magellanic Cloud* Science 350, 6262, 801-805 (2015)
16. **The Fermi-LAT Collaboration *Searching for Dark Matter Annihilation from Milky Way Dwarf Spheroidal Galaxies with Six Years of Fermi-LAT Data* Phys. Rev. Lett. 115, 231301 (2015)**

17. The Fermi-LAT Collaboration *Search for Extended Gamma-ray Emission from the Virgo Galaxy Cluster* ApJ 812 159 (2015)
18. **The Fermi-LAT and DES Collaborations Search for Gamma-ray Emission from DES Dwarf Spheroidal Galaxy Candidates with Fermi-LAT Data** ApJ Lett. 809, L4 (2015)
19. **The Fermi-LAT Collaboration Updated Search for Spectral Lines with Pass 8 Data** Phys. Rev. D. 91, 122002 (2015)
20. **The Fermi-LAT Collaboration Limits on Dark Matter Annihilation Signals from the Fermi LAT 4-year Measurement of the Isotropic Gamma-Ray Background** JCAP 1509 (2015) 09, 008
21. The Fermi-LAT Collaboration *Fermi Large Area Telescope Third Source Catalog* ApJS 218 2, 23 (2015)
22. The Fermi-LAT Collaboration *The Spectrum of Isotropic Diffuse Gamma-ray Emission Between 100 MeV and 820 GeV* ApJ 799, 86 (2015)
23. **L. Tibaldo et al. TARGET: toward a solution for the readout electronics of the Cherenkov Telescope Array** Proceedings of the 34th ICRC 932, 2015. 659 arXiv:1508.06296 (2015)
24. **A. Massari et al. Strong Optimized Conservative Fermi-LAT Constraints on Dark Matter Models from the Inclusive Photon Spectrum** Phys. Rev. D 91, 083539 (2015)
25. **The Fermi-LAT Collaboration Inferred Cosmic-ray Spectrum from Fermi Large Area Telescope Gamma-ray Observations of the Earth's Limb** Phys. Rev. Lett. 112 (2014) 151103
26. The Fermi-LAT Collaboration *Fermi Establishes Classical Novae as a Distinct Class of Gamma-Ray Sources* Science 345 554-558 (2014)
27. The Fermi-LAT Collaboration *The Spectrum and Morphology of the Fermi Bubbles* ApJ 793, 64 (2014)
28. **The Fermi-LAT Collaboration Dark Matter Constraints from Observations of 25 Milky Way Satellite Galaxies with the Fermi Large Area Telescope** Phys. Rev. D 89, 042001 (2014)
29. The Fermi-LAT Collaboration *Search for Cosmic-ray-induced Gamma-ray Emission in Galaxy Clusters* ApJ 787, 18 (2014)
30. The Fermi-LAT Collaboration *Deep Broadband Observations of the Distant Gamma-ray Blazar PKS 1424+240* ApJ Lett. 785, L16 (2014)
31. **A. Albert et al Search for 100 MeV to 10 GeV gamma-ray lines in the Fermi-LAT data and implications for gravitino dark matter in the  $\mu$ VSSM** JCAP 10 (2014) 023
32. The Fermi-LAT Collaboration *High-energy Gamma-ray Emission from Solar Flares: Summary of Fermi-LAT Detections and Analysis of Two M-Class Flares* ApJ 787, 15 (2014)
33. **The Fermi-LAT Collaboration Search for Gamma-ray Spectral Lines with the Fermi Large Area Telescope and Dark Matter Implications** Phys. Rev. D. 88, 082002 (2013)
34. The Fermi-LAT Collaboration *The Fermi All-sky Variable Analysis: A list of flaring gamma-ray sources and the search for transients in our Galaxy* ApJ 771, 57 (2013)
35. **W. Atwood et al. Pass 8: Toward the Full Realization of the Fermi-LAT Scientific Potential** 2012

Fermi Symposium proceedings eConf C121028 arXiv:1303.3514 (2013)

36. The Fermi-LAT Collaboration *On-orbit calibration and validation of the Fermi Large Area Telescope instrument response* *ApJS* 203, 4 (2012)
37. The Fermi LAT Collaboration *Anisotropies in the Diffuse Gamma-Ray Background and Dark Matter with Fermi LAT: A closer look* *MNRAS* 414, 2040 (2011)
38. The Fermi-LAT Collaboration *Fermi LAT Search for Dark Matter in Gamma-ray Lines and the Inclusive Photon Spectrum* *Phys. Rev. D* 86, 022002 (2012)
39. The Fermi LAT-Collaboration *Search for Dark Matter Satellites using the FERMI-LAT* *ApJ* 747, 121 (2012)
40. The Fermi-LAT Collaboration *Constraining Dark Matter Models from a Combined Analysis of Milky Way Satellites with the Fermi Large Area Telescope* *Phys. Rev. Lett.* 107, 241302 (2011)

#### Invited Presentations:

1. A. Albert *Searching for Dark Matter with Cosmic Messengers*  
Invited speaker at the 3rd Kobayashi Maskawa Institute International Symposium (1/6/17)
2. A. Albert *Cosmic Clue: The Dark Matter Mystery* SLAC Public Lecture (11/17/2015)
3. A. Albert *Searching for Dark Matter with Gamma Rays*  
Invited speaker at APS April Meeting (04/11/2015)
4. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
Research Progress Meeting Seminar at LBNL (12/05/14)
5. A. Albert *Updated Spectral Line Search and Status of 133 GeV Feature with Pass 8 Data*  
Plenary speaker at 5th Fermi Symposium (10/24/2014)
6. A. Albert *Cherenkov Telescope Array Science Prospects and Project Status*  
Invited speaker at 10th INTEGRAL Workshop (09/18/2014)
7. A. Albert *Search for Gamma-ray Spectral Lines with the Fermi Large Area Telescope*  
Invited speaker at the Vulcano Workshop (02/27/2014)
8. A. Albert *Search for Gamma-ray Spectral Lines with the Fermi Large Area Telescope and the Status of the 135 GeV Feature*  
Invited Speaker at DM 2014 (UCLA) (02/27/2014)
9. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
HEP Seminar at Rice University (11/05/2013)
10. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
Invited speaker at TAUP 2013 Dark Matter Parallel (09/12/13)
11. A. Albert *Results from Search for Gamma-ray Spectral Lines with the Fermi Large Area Telescope and Dark Matter Implications* Invited speaker at TeVPA Dark Matter Parallel (08/29/13)
12. A. Albert *Search for Spectral Lines with the Fermi Large Area Telescope*

CCAPP Seminar at The Ohio State University (05/21/2013)

13. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
Invited speaker at IceCube Particle Astrophysics Symposium (05/13/2013)
14. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
Particle Physics Seminar at Harvard University (04/24/13)
15. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
Particle Physics Seminar at the Perimeter Institute for Theoretical Physics (01/15/13)
16. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
HEP Seminar at the University of Virginia (12/05/12)
17. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
HEPMEP Seminar at the University of Illinois (11/16/12)
18. A. Albert *Search for Gamma-ray Spectral Lines with the Fermi Large Area Telescope*  
Invited speaker at the 2012 Fermi Symposium (11/02/12)
19. A. Albert *Indirect Searches for Dark Matter with the Fermi Large Area Telescope*  
Invited speaker at LANL Summer Workshop "LHC Now" (07/12/12)

### Teaching and Mentoring:

<i>Nov 2016 -- present</i>	Mentor to a student at Pojague Valley High School
<i>Spring 2017</i>	Mentor to a class at Abiquiu Elementary School
<i>May 2015</i>	Lecturer at the Fermi Summer School
<i>April 2015</i>	Leader in Residence at Miss Porter's School, Farmington CT
<i>2014-present</i>	Supervisor for summer research interns at SLAC Alex Gibson via SULI program Sarah Vickery via SULI program Silvia Martocchia via INFN exchange program
<i>2014-present</i>	Mentored hometown (Bristol, CT) high school Chemistry class Live <a href="#">Q&amp;A</a> session archived on Youtube Special assembly speaker at Bristol Eastern High School (April 2015)
<i>2011-13</i>	Mentored incoming physics graduate students, The Ohio State
University	
<i>2009-10</i>	Graduate Teaching Assistant, The Ohio State University Led recitation and laboratory sessions for introductory physics classes in mechanics, electricity & magnetism, and waves & optics
<i>2007</i>	Teaching Assistant, Rice University Graded and led recitations for introductory computational and applied mathematics course in MATLAB

### Published Books:

*August 2016*      [Searching for Dark Matter with Cosmic Gamma Rays](#)

## Service & Outreach:

2014-present	Built and curated content for public website for <a href="#">CTA-US</a> group
2014	Guest on “Game Changers: Silicon Valley” <a href="#">Episode 5</a> , <a href="#">Episode 10</a>
2014-present	Popular physics blogger for KIPAC ( <a href="http://kipac.stanford.edu/kipac/kipac-blog">http://kipac.stanford.edu/kipac/kipac-blog</a> ) <i>How special is “3 sigma”?</i> <i>Dark Concentration -- It Matters!</i>
2014-present	Lobbied Congress for High-Energy Physics
2014	Guest astrophysicist for live <a href="#">Q&amp;A session on Gizmodo</a>
2014	Featured physicist during " <a href="#">virtual field trip</a> " of SLAC
2009 - 11	Directed the “Fun with Physics” booth at the Ohio State Fair & starred in daily demonstration shows as “Andrea the Giant”
2010-13	Perform physics demos at various Columbus schools and science events
2009	Councilor at “Girls Reaching to Achieve in Sports and Physics” camp

## References:

Dr. Brenda Dingus  
Scientist at Los Alamos National Laboratory  
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Dr. Seth Digel  
Senior Staff Scientist at SLAC National Accelerator Laboratory  
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Dr. Brian Winer  
Professor of Physics at The Ohio State University  
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Dr. Stefan Funk  
Professor of Physics at Erlanger Center for Astroparticle Physics  
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Dr. William Atwood  
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Dr. John Beacom  
Director of the Center for Cosmology and AstroParticle Physics (CCAPP)  
Professor of Physics at The Ohio State University

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Associate Professor Department of Electrical and Computer Engineering at Colorado State University  
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Dr. Harvey Newman  
Professor of Physics at Caltech  
[newman@hep.caltech.edu](mailto:newman@hep.caltech.edu)

Dr. Julie McEnery  
Fermi Project Scientist, NASA-GSFC  
Adjunct Professor of Physics at University of Maryland, College Park  
[julie.mcenery@nasa.gov](mailto:julie.mcenery@nasa.gov) +1 301-286-1632

Dr. Steve Ritz  
Director of Santa Cruz Institute for Particle Physics (SCIPP)  
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Dr. Douglas Finkbeiner  
Associate Professor of Physics and Astronomy at Harvard University  
[dfinkbeiner@cfa.harvard.edu](mailto:dfinkbeiner@cfa.harvard.edu)