# Michael B. Zemcov

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## **Professional Experience**

2015 Aug. – Present	Assistant Professor, The Rochester Institute of Technology, Rochester, NY
2009 Dec. – Present	Affiliate Scientist, Jet Propulsion Laboratory, Pasadena, CA
2009 Dec 2015 Jul.	Senior Postdoctoral Fellow, The California Institute of Technology, Pasadena, CA
2006 Nov. – 2009 Nov.	NASA Postdoctoral Fellow, Jet Propulsion Laboratory, Pasadena, CA
2006 Nov. – 2009 Nov.	Visiting Postdoctoral Scholar, The California Institute of Technology, Pasadena, CA

## Education

Ph.D. in Physics, Cardiff University, Cardiff, United Kingdom, November 2006 Thesis title: *Measurement of the Temperature and Polarization Anisotropies in the Cosmic Microwave Background with QUaD*, Advisers: Profs. Walter Gear & Philip Mauskopf

B.Sc. with Honors in Physics, University of British Columbia, Vancouver, Canada, May 2003 Thesis title: *Measuring the Sunyaev-Zeldovich Increment in Massive Galaxy Clusters*, Adviser: Prof. Mark Halpern

## **Research Experience**

Current member of the Center for Detectors and School of Physics and Astronomy at RIT. Over a decade of research experience in experimental astrophysics and cosmology, with specialization in multi-wavelength studies of the extragalactic infra-red background, the cosmic microwave background radiation including polarization and the Sunyaev-Zeldovich effect, and reionization. Experienced in instrument design, integration, data analysis, and the scientific interpretation of results. Extensive scientific and project management experience including a wide range of team sizes and platforms from ground based to sub-orbital and space observatories.

• Astrophysics with New Horizons (2015 - Present)

Lead of studies and analyses centered on using NASA's *New Horizons* mission to the outer solar system for astrophysical observation.

• CSTARS (2015 - Present)

Principle Investigator of the Cryogenic Star Tracking Attitude Regulation System, an undergraduate-led research program to build a small star tracking CMOS-based camera for sounding rocket payloads.

• **SPHEREx** (2014 - Present)

Co-Investigator of the Spectro-PHotometer for the Extragalactic structure, Reionization and Ices eXplorer, an NASA MIDEX program currently selected for a Phase A study.

#### **Research Experience (continued)**

• CIBER-2 (2013 - Present)

Co-Investigator on the continuation of the CIBER series of sounding rocket payloads investigating the near infra-red background. Responsible for a variety of hardware and software deliverables, and for science extraction.

• **TIME** (2012 - Present)

Co-Investigator of the Tomographic Ionized-Carbon Mapping Experiment (TIME), leading instrument simulation and science work packages, and lead roles in data acquisition and data analysis software development.

• LAMP (2012 - Present)

Principle Investigator of the Lyman Alpha Mapping Project (LAMP). Responsible for major work packages including hardware specification and design, observation strategy, and data analysis development.

• Herschel-SPIRE/Ground-Based Submillimeter (2008 - Present)

Leadership roles in instrument data analysis and science interpretation. Associate Scientist in the SPIRE Guaranteed Time team, an Instrument Team working member, a co-Investigator in the key program galaxy cluster survey, and the Principle Investigator of ongoing data analysis programs.

Co-Investigator of both the SCUBA-2 Cosmology Legacy Survey and the SCUBA-2 lensing cluster survey. Led various studies with Z-Spec, including the first high-resolution spectral measurement of the SZ effect. Various science projects involving Bolocam and AzTEC data analysis. Commissioning and data analysis of MUSIC, a four-band trans-millimetric KID-based camera.

• **CIBER** (2006 - 2015)

CIBER's lead postdoctoral scholar with key roles in all aspects of the project. Major contributions include leading the instrument design, integration, commissioning and fielding, data analysis, and scientific interpretation efforts.

• QUaD (2003 - 2008)

Assisted with cryogenic commissioning, system integration, and testing of optical, electronic and cryogenic components. Performed early simulation of data analysis pipeline leading to a major involvement in the data analysis effort. Key roles in instrument characterization, systematic error identification and control, calibration, and scientific output.

• Technology Development (Ongoing)

Leading a number of technology development programs including optimization of HAWAII-2 HgCdTe arrays and algorithms for demanding space applications and new photon-counting AstroQIS CMOS-based detectors and photonic spectrometers for optical applications.

Involved in design studies for next-generation low- and medium-resolution sub-mm spectrometric technologies, which are driven by the need for kilo-pixel or larger sub-mm arrays to measure line emission from the epoch of reionization, high redshift star forming galaxies, axion decay, and other extragalactic science cases.

Principle investigator of a NASA CubeSat program proposed to test long-life power generation technologies in the space environment.

## **Teaching & Outreach Experience**

• The Rochester Institute of Technology (2015 – Present)

Member of the School of Physics and Astronomy, and the Astrophysical Sciences and Technology Graduate Program. Secondary instructor of PHYS-315 "Experiments in Modern Physics", primary instructor of ASTP-615 "Radiative Processes for Astrophysical Sciences".

#### **Teaching Experience (continued)**

Astrophysical Sciences and Technology Program research mentor for: Ms. C. Nguyen (Ph.D. candidate), Ms. V. Butler (Ph.D. candidate), Ms. T. Symons (Ph.D. candidate), and Ms. M. Liu (M.S. candidate). Past "Project with paper" research supervisor for Mr. P. Linden (Mechanical Engineering). Past M.S. thesis cosuperivor for Mr. K. Kruse (Electrical Engineering) and current co-supervisor for Mr. B. Stewart (Electrical Engineering). Chief customer for a RIT KGOE Senior Design Team. Astrophysical Sciences and Technology Program Thesis Committee member for Alexander Rasskazov (Ph.D. candidate) and Imaging Sciences Program Thesis Committee member for Katie Seery.

Physics Capstone Mentor for Mr. N. Bitten.

Center for Detectors past Co-Op Program mentor for Mr. J. Hill (Microsystems Engineering), Ms. Poppy Immel (Computer Science), Mr. K. Kruse (Electrical Engineering), Mr. C. Pape (Mechanical Engineering), and Mr. H. Won (Business Administration). Past research supervisor for Mr. S. Bag (Computer Engineering, M.S.), Mr. B. Bondor (Electrical Engineering), Mr. P. Cardona (Physics), Mr. M. Delfavero (Physics), Mr. K. Evans (Mechanical Engineering), Ms. Poppy Immel (Computer Science), Mr. K. Kruse (Electrical Engineering), Mr. S. Kulhare (Computer Science, M.S.), Mr. J. Maggio (Imaging Science), and Ms. V. Yost (Science Exploration). Current research supervisor for: Ms. A. DeSanitiago (Imaging Science), Mr. P. Hart (Physics), Mr. J. Loewenthal (Electrical Engineering), Mr. C. Pape (Mechanical Engineering), and Mr. J. Parkus (Mechanical Engineering).

• The California Institute of Technology (2006 – 2015)

Graduate student research mentoring/co-supervision of: A. Lanz, J. Smidt, K. Mitchell-Wynne, M. Weiss, K. Tsumura, T. Arai, M.-G. Kim, I. Sullivan.

Undergraduate student research mentoring/supervision of: A. Lam, A. Meek, N. Fruitwala, T. Taak, T. Wood.

• **Cardiff University** (2003 – 2006)

School of Physics and Astronomy Teaching Assistant.

#### **Select Outreach Activities**

RIT Undergraduate Research Symposium Session Chair, August 2017.

Northside School STEM Night Featured Presenter, February 2017.

Past RIT Fast Forward Program research mentor for incoming Freshman Mr. K. Evans (2016), Mr. P. Cardona and Mr. P. Hart (2017).

Past research mentor for local high school students Mr. D. Zsentis, Mr. K. Mooney.

Regular contributor to the "Titanium Physicists" Podcast on which topics in modern physics are presented to the general public, http://titaniumphysicists.brachiolopemedia.com (rated 5 stars on iTunes).

Invited speaker, "Science Cafe Rochester" http://sciencecaferochester.blogspot.com, an interactive public lecture event involving face-to-face conversations with leading scientists discussing current research in the Rochester, NY area, April 2016.

Contributor to the "RIT Space Exploration" student group podcast, March 2016.

Featured on CFOX Vancouver Radio, February 2016.

Featured on Canadian Broadcasting Corporation's weekly science show "Quirks & Quarks", November 2014. Grand Prize Judge, Intel ISEF Science Fair Competition, May 2014.

# Professional Service

Member/Chair of various Federal Agency Review Panels.

Frequent Referee/Reviewer, The Astrophysical Journal, The Astronomical Journal, Astronomy & Astrophysics,

Monthly Notices of the Royal Astronomical Society, and others. Member, NASA Far-Infrared Science Interest Group Leadership Council, 2017 – Present Member, RIT SoPA Strategic Planning Committee, 2017 – Present Chair, RIT Astrophysical Sciences and Technology Colloquia Series, 2016 – Present Member, RIT COS Machine Shop Committee, 2016 – Present Member, RIT AST Curriculum Committee, 2016 – Present New York Space Grant Affiliate Director for RIT, 2016 – Present Chair, 227<sup>th</sup> Meeting of the American Astronomical Society Intensity Mapping Special Session, January 2016 Member, RIT School of Physics and Astronomy Capstone Project Committee, 2015 – 2017 Member, RIT Astrophysical Sciences and Technology Curriculum Committee, 2015 – Present Member, RIT Astrophysical Sciences and Technology Curriculum Committee, 2015 – Present

## Honors, Awards, Professional Memberships

NASA Achievement Award for CIBER, 2014 NASA Achievement Award for Herschel-SPIRE Commissioning, 2010 NASA Postdoctoral Fellowship, 2006 – 2009 Antarctic Service Medal, 2006, 2007 Cardiff University Scholarship, 2003 – 2006 Royal Astronomical Society Student Grant, 2006 Fellow of the Royal Astronomical Society Member of the American Astronomical Society

## **Invited Talks**

"Astrophysics with New Horizons: Making the Most of a Generational Opportunity" *Astronomy Department Colloquium*, Cornell University, Ithaca, NY, September 2017

"Astrophysics with New Horizons: Making the Most of a Generational Opportunity" NASA HQ Brown Bag Lunch Seminar, NASA Headquarters, Washington, D.C., May 2017

"Measuring the Largest Structures in the Universe with the Smallest Telescopes in Space" Center for Astronomy and Astrophysics Seminar, Yale University, New Haven, CT, April 2017

"Measuring the Largest Structures in the Universe with the Smallest Telescopes in Space" *Lunch Astrophysics Seminar*, Carnegie Mellon University, Pittsburgh, PA, March 2017

"Near-IR Intensity Mapping with CIBER-2" NASA UV-Vis PI Annual Meeting, Washington, D.C., September 2016

"Measuring the Largest Structures in the Universe with the Smallest Telescopes in Space" "*Photons After Dark*" *Seminar*, Rochester Institute of Technology, Rochester, NY, September 2016

"Measuring the Largest Structures in the Universe with the Smallest Telescopes in Space" Astrophysics, Gravitation, and Cosmology Seminar, University of Illinois Urbana-Champaign, IL, March 2016

"When Foregrounds Attack" Opportunities and Challenges in Intensity Mapping Workshop, Stanford University, CA, March 2016

#### **Invited Talks (continued)**

"Statistical Measurements of Reionizing Sources with Emission Line Intensity Mapping" *The Reionization Epoch: New Insights and Future Prospects*, Aspen, CO, March 2016

"Recent Results from Broad-Band Intensity Mapping of Large Scale Cosmic Structure" 227<sup>th</sup> AAS Meeting Special Session "Opening a New Window on Cosmic Structure with Intensity Mapping", Kissimmee, FL, January 2016

"Status of the Cosmic Infra-Red Background Experiment-2" NASA UV-Vis PI Annual Meeting, Washington, D.C., September 2015

"Near-IR Background Fluctuation Results from the Cosmic Infra-Red Background Experiment" *NIRB2015 Workshop* (Invited Talk), Max-Planck-Institut fr Astrophysik, June 2015

"Near-IR Background Fluctuation Results from the Cosmic Infra-Red Background Experiment" *KICP Seminar*, University of Chicago, IL, March 2015

"CIBER, Fluctuations in the Near IR Background, and the Intra-halo Light" *Cosmology on the Slopes*, Aspen, CO, March 2015

"Near-IR Background Fluctuation Results from the Cosmic Infra-Red Background Experiment" *Cosmology Seminar*, Arizona State University, AZ, November 2014

"Rocket Experiment Finds Missing Light from the Universe" NASA Editorial Board Meeting, Washington, D.C., October 2014

"New Results from the Cosmic Infra-Red Background Experiment" NASA UV-Vis PI Annual Meeting, Washington, D.C., September 2014

"The Near IR Background and the Cosmic Infra-Red Background Experiment" *Deciphering the Cosmic Infra-Red Background Workshop*, Banyuls, France, October 2012

"Measurement of the Sunyaev-Zel'dovich Effect Increment with Large Aperture Sub-mm Telescopes" 220<sup>th</sup> AAS Meeting Special Session "High Angular Resolution Sunyaev-Zel'dovich Effect", Anchorage, AK, June 2012

"Measuring Light from the Epoch of Reionization with the Cosmic Infra-Red Background Experiment" *The Near Infra-Red Background and the Epoch of Reionization Workshop*, Austin, TX, May 2012

"Measuring Light from the Epoch of Reionization with the Cosmic Infra-Red Background Experiment" NASA Sounding Rocket Working Group, Washington, D.C., September 2011

"Measuring Light from the Epoch of Reionization with the Cosmic Infra-Red Background Experiment" *Cosmic Radiation Fields - Sources in the Early Universe Workshop*, Hamburg, Germany, November 2010

"Measuring Light from the Epoch of Reionization with CIBER" *Stanford Cosmology Seminar*, Stanford University, CA, May 2008

"Measuring the Polarization of the Cosmic Microwave Background with QUaD" Astronomy Colloquium, Oxford University, UK, July 2007

"First Year CMB Temperature and Polarization Results from QUaD" JPL Astronomy Seminar, Jet Propulsion Laboratory, CA, June 2007

"QUaD: Measurement of the CMB Polarization from the South Pole" *Observational Cosmology Seminar*, California Institute of Technology, CA, March 2006

"Measuring the Polarization of the Cosmic Microwave Background with QUaD" *Astronomy Colloquium*, The University of Colorado Boulder, CO, June 2005

## **Publication List**

*Harzing's Publish or Perish*<sup>1</sup> reports an *h*-index of 50 for 14 years since first publication based on published papers, and Google Scholar indicates an *i*10-index of 98 over the same time period. Publications are listed in reverse chronological order and the author lists have been truncated after the first three names.

- 1. Nayyeri, H., Ghotbi, N., Cooray, A., et al., 2017. "Spitzer Observations of the North Ecliptic Pole." *Accepted by ApJS; available as ArXiv e-print 1712.01290*.
- 2. Kovetz, E. D., Viero, M. P., Lidz, A., et al., 2017. "Line-Intensity Mapping: 2017 Status Report." *Submitted to Physics Reports; available as ArXiv e-print 1709.09066.*
- 3. Farrah, D., Ennico Smith, K., Ardila, D., et al., 2017. "Review: Far-Infrared Instrumentation and Technology Development for the Next Decade." *Submitted to JATIS; available as ArXiv e-print 1709.02389*.
- 4. Manzotti, A., Story, K. T., Wu, W. L. K., et al., 2017. "CMB Polarization B-mode Delensing with SPTpol and Herschel." *The Astrophysical Journal*, 846, 45.
- 5. Zemcov, M., Cardona, P., Parkus, J., et al., 2017. "Environmental Testing of Tritium-Phosphor Glass Vials for Use in Long-Life Radioisotope Power Conversion Units." *JPL/NASA Technical Reports*, 17, 4.
- Michałowski, M. J., Dunlop, J. S., Koprowski, M. P., et al., 2017. "The SCUBA-2 Cosmology Legacy Survey: the nature of bright submm galaxies from 2 deg<sup>2</sup> of 850-μm imaging." *Monthly Notices of the Royal Astronomical Society*, 469, pp. 492–515.
- 7. Zemcov, M., Immel, P., Nguyen, C., et al., 2017. "Measurement of the cosmic optical background using the long range reconnaissance imager on New Horizons." *Nature Communications*, 8, 15003.
- 8. Matsuura, S., Arai, T., Bock, J. J., et al., 2017. "New Spectral Evidence of an Unaccounted Component of the Near-infrared Extragalactic Background Light from the CIBER." *The Astrophysical Journal*, 839, 7.
- Geach, J. E., Dunlop, J. S., Halpern, M., et al., 2017. "The SCUBA-2 Cosmology Legacy Survey: 850 μm maps, catalogues and number counts." *Monthly Notices of the Royal Astronomical Society*, 465, pp. 1789–1806.
- 10. Gong, Y., Cooray, A., Silva, M. B., et al., 2017. "Intensity Mapping of H $\alpha$ , H $\beta$ , [OII], and [OIII] Lines at z < 5." *The Astrophysical Journal*, 835, 273.
- 11. Kim, M. G., Lee, H. M., Arai, T., et al., 2017. "Low-Resolution Near-infrared Stellar Spectra Observed by the Cosmic Infrared Background Experiment (CIBER)." *The Astronomical Journal*, 153, 84.
- 12. Adam, R., Bartalucci, I., Pratt, G. W., et al., 2017. "Mapping the kinetic Sunyaev-Zel'dovich effect toward MACS J0717.5+3745 with NIKA." *Astronomy and Astrophysics*, 598, A115.
- 13. Su, T., Marriage, T. A., Asboth, V., et al., 2017. "On the redshift distribution and physical properties of ACT-selected DSFGs." *Monthly Notices of the Royal Astronomical Society*, 464, pp. 968–984.
- 14. Lanz, A. E., Arai, T., Battle, J., et al., 2017. "Build up and integration of the rocket-borne Cosmic Infrared Background ExpeRiment-2." In "American Astronomical Society Meeting Abstracts," volume 229 of *American Astronomical Society Meeting Abstracts*. p. 238.10.

<sup>&</sup>lt;sup>1</sup>http://www.harzing.com/resources.htm\#/pop.htm

- 15. Crites, A., Bock, J., Bradford, M., et al., 2017. "Measuring the Epoch of Reionization using [CII] Intensity Mapping with TIME-Pilot." In "American Astronomical Society Meeting Abstracts," volume 229 of *American Astronomical Society Meeting Abstracts*. p. 125.01.
- 16. Sun, G., Moncelsi, L., Viero, M. P., et al., 2016. "A Foreground Removal Strategy for future C[II] Intensity Mapping Experiments: Insights From Galaxies Selected by Stellar Mass and Redshift." *Submitted to ApJ; available as ArXiv e-print 1610.10095.*
- 17. Nguyen, H. T., Zemcov, M., Battle, J., et al., 2016. "Spatial and Temporal Stability of Airglow Measured in the Meinel Band Window at 1191.3 nm." *Proceedings of the Astronomical Society of the Pacific*, 128, 9, p. 094504.
- 18. Hunacek, J., Bock, J., Bradford, C. M., et al., 2016. "Detector modules and spectrometers for the TIME-Pilot [CII] intensity mapping experiment." In "Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VIII," volume 9914 of *Proceedings of the SPIE*. p. 99140L.
- 19. Shirahata, M., Arai, T., Battle, J., et al., 2016. "The cosmic infrared background experiment-2 (CIBER-2) for studying the near-infrared extragalactic background light." In "Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series," volume 9904 of *Proceedings of the SPIE*. p. 99044J.
- 20. Gong, Y., Cooray, A., Mitchell-Wynne, K., et al., 2016. "Axion Decay and Anisotropy of Near-IR Extragalactic Background Light." *The Astrophysical Journal*, 825, 104.
- 21. Zemcov, M., Crill, B., Ryan, M., et al., 2016. "An Algorithm for Real-Time Optimal Photocurrent Estimation Including Transient Detection for Resource-Constrained Imaging Applications." *Journal of Astronomical Instrumentation*, 5, 1650007.
- 22. Doré, O., Werner, M. W., Ashby, M., et al., 2016. "Science Impacts of the SPHEREx All-Sky Optical to Near-Infrared Spectral Survey: Report of a Community Workshop Examining Extragalactic, Galactic, Stellar and Planetary Science." *Community white paper, appears as ArXiv e-print astro-ph/1606.07039*.
- 23. Sayers, J., Zemcov, M., Glenn, J., et al., 2016. "Peculiar Velocity Constraints from Five-band SZ Effect Measurements toward RX J1347.5-1145 with MUSIC and Bolocam from the CSO." *The Astrophysical Journal*, 820, 101.
- 24. Marchetti, L., Vaccari, M., Franceschini, A., et al., 2016. "The HerMES submillimetre local and low-redshift luminosity functions." *Monthly Notices of the Royal Astronomical Society*, 456, pp. 1999–2023.
- 25. Cooray, A., Bock, J., Burgarella, D., et al., 2016. "Cosmic Dawn Intensity Mapper." *Mission description paper, appears as ArXiv e-print astro-ph/1602.05178.*
- 26. Bradford, M., Crites, A., Hunacek, J., et al., 2016. "Probing the Epoch of Reionization via CII Tomography with TIME-Pilot." In "American Astronomical Society Meeting Abstracts," volume 227 of *American Astronomical Society Meeting Abstracts*. p. 426.07.
- 27. Zemcov, M. B., 2016. "Recent Results from Broad-Band Intensity Mapping Measurements of Cosmic Large Scale Structure." In "American Astronomical Society Meeting Abstracts," volume 227 of American Astronomical Society Meeting Abstracts. p. 426.02.
- 28. Zemcov, M. B., 2016. "Near-IR Extragalactic Background Results from the Cosmic Infrared Background Experiment (CIBER)." In "American Astronomical Society Meeting Abstracts," volume 227 of American Astronomical Society Meeting Abstracts. p. 412.02.

- 29. Lanz, A. E., Arai, T., Battle, J., et al., 2016. "Intensity Mapping of the History of Stellar Emission with the Cosmic Infrared Background ExpeRiment-2." In "American Astronomical Society Meeting Abstracts," volume 227 of *American Astronomical Society Meeting Abstracts*. p. 335.03.
- 30. Zemcov, M. B. and the SPHEREx Science Team, 2016. "SPHEREx: Understanding the Origin and Evolution of Galaxies Through the Extragalactic Background Light." In "American Astronomical Society Meeting Abstracts," volume 227 of *American Astronomical Society Meeting Abstracts*. p. 147.04.
- 31. Viero, M. P., Moncelsi, L., Quadri, R. F., et al., 2015. "HerMES: Current Cosmic Infrared Background Estimates Can be Explained by Known Galaxies and Their Faint Companions at z > 4." *The Astrophysical Journal Letters*, 809, L22.
- 32. Wang, L., Viero, M., Ross, N. P., et al., 2015. "Co-evolution of black hole growth and star formation from a cross-correlation analysis between quasars and the cosmic infrared background." *Monthly Notices of the Royal Astronomical Society*, 449, pp. 4476–4493.
- 33. Arai, T., Matsuura, S., Bock, J., et al., 2015. "Measurements of the Mean Diffuse Galactic Light Spectrum in the 0.95 1.65 μm Band from CIBER." *The Astrophysical Journal*, 806, 69.
- 34. Doré, O., Bock, J., Ashby, M., et al., 2014. "Cosmology with the SPHEREX All-Sky Spectral Survey." *Mission description paper, appears as ArXiv e-print astro-ph/1412.4872.*
- 35. Zemcov, M., Smidt, J., Arai, T., et al., 2014. "On the Origin of Near-Infrared Extragalactic Background Light Anisotropy." *Science*, 346, p. 6210.
- 36. Gralla, M. B., Crichton, D., Marriage, T. A., et al., 2014. "A measurement of the millimetre emission and the Sunyaev-Zel'dovich effect associated with low-frequency radio sources." *Monthly Notices of the Royal Astronomical Society*, 445, pp. 460–478.
- 37. Wang, L., Viero, M., Clarke, C., et al., 2014. "HerMES: point source catalogues from Herschel-SPIRE observations II." *Monthly Notices of the Royal Astronomical Society*, 444, pp. 2870–2883.
- 38. Crites, A. T., Bock, J. J., Bradford, C. M., et al., 2014. "The TIME-Pilot intensity mapping experiment." In "Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series," volume 9153 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series. p. 1.
- 39. O'Brient, R., Bock, J. J., Bradford, C. M., et al., 2014. "Lithographed spectrometers for tomographic line mapping of the Epoch of Reionization." In "Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series," volume 9153 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*. p. 0.
- 40. Lanz, A., Arai, T., Battle, J., et al., 2014. "Studying extragalactic background fluctuations with the Cosmic Infrared Background ExpeRiment 2 (CIBER-2)." In "Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series," volume 9143 of Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series.
- 41. Wardlow, J. L., Malhotra, S., Zheng, Z., et al., 2014. "Constraining the Ly $\alpha$  Escape Fraction with Farinfrared Observations of Ly $\alpha$  Emitters." *The Astrophysical Journal*, 787, 9.
- 42. Clements, D. L., Braglia, F. G., Hyde, A. K., et al., 2014. "Herschel Multitiered Extragalactic Survey: clusters of dusty galaxies uncovered by Herschel and Planck." *Monthly Notices of the Royal Astronomical Society*, 439, pp. 1193–1211.

- 43. Rawle, T. D., Egami, E., Bussmann, R. S., et al., 2014. "[C II] and <sup>12</sup>CO(1-0) Emission Maps in HLSJ091828.6+514223: A Strongly Lensed Interacting System at z = 5.24." *The Astrophysical Journal*, 783, 59.
- 44. Viero, M. P., Asboth, V., Roseboom, I. G., et al., 2014. "The Herschel Stripe 82 Survey (HerS): Maps and Early Catalog." *The Astrophysical Journal Supplement*, 210, 22.
- 45. Heinis, S., Buat, V., Béthermin, M., et al., 2014. "HerMES: dust attenuation and star formation activity in ultraviolet-selected samples from z 4 to 1.5." *Monthly Notices of the Royal Astronomical Society*, 437, pp. 1268–1283.
- 46. Dowell, C. D., Conley, A., Glenn, J., et al., 2014. "HerMES: Candidate High-redshift Galaxies Discovered with Herschel/SPIRE." *The Astrophysical Journal*, 780, 75.
- 47. Viero, M. P., Moncelsi, L., Quadri, R. F., et al., 2013. "HerMES: The Contribution to the Cosmic Infrared Background from Galaxies Selected by Mass and Redshift." *The Astrophysical Journal*, 779, 32.
- Roseboom, I. G., Dunlop, J. S., Cirasuolo, M., et al., 2013. "The SCUBA-2 Cosmology Legacy Survey: demographics of the 450-μm population." *Monthly Notices of the Royal Astronomical Society*, 436, pp. 430–448.
- 49. Sayers, J., Mroczkowski, T., Zemcov, M., et al., 2013. "A Measurement of the Kinetic Sunyaev-Zel'dovich Signal Toward MACS J0717.5+3745." *The Astrophysical Journal*, 778, 52.
- 50. Boone, F., Clément, B., Richard, J., et al., 2013. "An extended Herschel drop-out source in the center of AS1063: a normal dusty galaxy at z = 6.1 or SZ substructures?" *Astronomy and Astrophysics*, 559, L1.
- 51. Hanson, D., Hoover, S., Crites, A., et al., 2013. "Detection of B-Mode Polarization in the Cosmic Microwave Background with Data from the South Pole Telescope." *Physical Review Letters*, 111, 14, 141301.
- 52. Ibar, E., Sobral, D., Best, P. N., et al., 2013. "Herschel reveals the obscured star formation in HiZELS H $\alpha$  emitters at z = 1.47." *Monthly Notices of the Royal Astronomical Society*, 434, pp. 3218–3235.
- 53. Calanog, J. A., Wardlow, J., Fu, H., et al., 2013. "HerMES: The Far-infrared Emission from Dust-obscured Galaxies." *The Astrophysical Journal*, 775, 61.
- 54. Korngut, P. M., Renbarger, T., Arai, T., et al., 2013. "The Cosmic Infrared Background Experiment (CIBER): The Narrow-Band Spectrometer." *The Astrophysical Journal Supplement*, 207, 34.
- 55. Tsumura, K., Arai, T., Battle, J., et al., 2013. "The Cosmic Infrared Background Experiment (CIBER): The Low Resolution Spectrometer." *The Astrophysical Journal Supplement*, 207, 33.
- 56. Bock, J., Sullivan, I., Arai, T., et al., 2013. "The Cosmic Infrared Background Experiment (CIBER): The Wide-field Imagers." *The Astrophysical Journal Supplement*, 207, 32.
- 57. Zemcov, M., Arai, T., Battle, J., et al., 2013. "The Cosmic Infrared Background Experiment (CIBER): A Sounding Rocket Payload to Study the near Infrared Extragalactic Background Light." *The Astrophysical Journal Supplement*, 207, 31.
- 58. Viero, M. P., Wang, L., Zemcov, M., et al., 2013. "HerMES: Cosmic Infrared Background Anisotropies and the Clustering of Dusty Star-forming Galaxies." *The Astrophysical Journal*, 772, 77.
- 59. Holder, G. P., Viero, M. P., Zahn, O., et al., 2013. "A Cosmic Microwave Background Lensing Mass Map and Its Correlation with the Cosmic Infrared Background." *The Astrophysical Journal Letters*, 771, L16.

- 60. Fu, H., Cooray, A., Feruglio, C., et al., 2013. "The rapid assembly of an elliptical galaxy of 400 billion solar masses at a redshift of 2.3." *Nature*, 498, pp. 338–341.
- Geach, J. E., Chapin, E. L., Coppin, K. E. K., et al., 2013. "The SCUBA-2 Cosmology Legacy Survey: blankfield number counts of 450-μm-selected galaxies and their contribution to the cosmic infrared background." *Monthly Notices of the Royal Astronomical Society*, 432, pp. 53–61.
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