

# Carl Douglas Ferkinhoff

## Curriculum Vitae

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### Contact:

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### Citizenship: US Citizen

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### Education:

Ph.D. 2012 (expected)	Cornell University	<i>Astronomy and Space Sciences</i> , “Development of the 2nd Generation Redshift(z) and Early Universe Spectrometer and the Detailed Study of Far-IR Fine-structure Lines in High-z Galaxies”
M.Sc. 2010	Cornell University	<i>Astronomy and Space Sciences</i>
Teacher Certification 2007	The Johns Hopkins University School of Education	State of Maryland Certification in <i>Secondary Physics and Chemistry</i> and course work towards <i>Masters of Teaching in Secondary Science</i>
B.A. 2005	Gustavus Adolphus College	Majored in <i>Physics</i>

### Professional Experiences:

2010 – present	<i>NASA Graduate Student Research Program(GSRP) Fellow</i> , Cornell University and NASA Goddard Space Flight Center
2009 – present	<i>Graduate Research Assistant</i> , Department of Astronomy, Cornell University
Summer 2007	<i>Director of Institute Technology</i> , Philidelphia Summer Institute, Teach For America
Summer 2006	<i>Director of Institute Technology</i> , Philidelphia Summer Institute, Teach For America
2004	<i>NSF Research Experience for Undergraduates</i> , Department of Astronomy, Cornell University
2002 - 2005	<i>Undergraduate Lab and Observatory Assistant</i> , Department of Physics, Gustavus Adolphus College

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**Teaching Experiences:**

July 2011	Attended the <i>Center for Astronomy Education (CAE) Legacy Program's inaugural Workshop and Retreat</i> . A workshop for early career scientists on implementing student centered instruction. Was one of 30 attendees from ~300 applicants.
2007 - 2009	<i>Graduate Teaching Assistant</i> , Department of Astronomy, Cornell University
Summer 2008 and 2009	Organizer and Leader, <i>TA training workshop for incoming Astronomy Graduate Students</i> , Department of Astronomy, Cornell University
October 2008	<i>Completed the Center for Astronomy Education (CAE) Tier 1: Teaching Excellency Workshop</i> on implementing student centered instruction in introductory astronomy courses, <a href="http://astronomy101.jpl.nasa.gov">http://astronomy101.jpl.nasa.gov</a>
Spring 2008	Developed and taught "Major Moments in Science" in a local high school, 8-lesson GRASSHOPR mini-course that examined important scientific discoveries since the Scientific Revolution, Cornell University, 2008
2005 - 2007	<i>Corps Member</i> , Teach For America, Baltimore, MD
2005 - 2007	<i>High School Physics and Chemistry Teacher</i> , The Institute of Business and Entrepreneurship, Baltimore City Public Schools

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**Research Interests:**

- Submillimeter astronomy and instrumentation
- Extra-galactic astronomy
- Starburst and high-redshift galaxies
- The AGN and star formation connection
- Far-IR fine-structure lines as tracers of star formation

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**Outreach and Other Experiences:**

- Program Coordinator, *Graduate Student School Outreach Program (GRASSHOPR)*, a program that allows graduate students to develop mini-courses and teach them in public schools. Public Service Center, Cornell University (2011 - present)
- Physical Sciences Voting Member, *Graduate and Professional Student Assembly*, Cornell University, (2011 - 2012)
- Vice Chair for Finance, *Graduate and Professional Student Programming Board*, Cornell University, (2011 - 2012)

- American Physical Society (APS) Representative, *Science, Engineering and Technology Congressional Visit Day (SET-CVD)*, Organized by the American Association for the Advancement of Science (AAAS), Washington DC (April 6 and 7, 2011)
  - Co-producer, writer, and host, *The Ask An Astronomer @ Cornell University Podcast*, <http://curious.astro.cornell.edu> , (2011 - present)
  - Program Coordinator, “Astronomy: Exploring the Solar System and the Universe”, *Focus For Teens Workshop*, 4-H Career Exploration, Cornell University (Summer 2010 and 2011)
  - Completed the *AAAS Communicating Science Workshop*, held at Cornell University (Fall 2009)
  - Emcee and Co-Founder, *Ask An Astronomer, LIVE!*, an informal science cafe hosted at a local bar where the public ask questions to a panel of graduate student astronomers., Cornell University (2009 – present)
  - President, *Astronomy Grads Network*, Cornell University (2008 – 2010)
  - Team Member, *Curious? Ask An Astronomer Website*, <http://curious.astro.cornell.edu> , Public can ask questions via our webpage that answered by graduate student team members. Cornell University (2007 - present)
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#### **Honors and Awards:**

- NASA Graduate Student Researcher Program Fellowship (2010 - present)
  - Benson Leister Fellowship, Award for academic excellence and leadership in the Graduate Field of Astronomy& Space Science, Cornell University (2009)
  - Certificate of Appreciation For Teaching, Baltimore Parent Teachers Association (2006)
  - Inducted into Sigma Pi Sigma, the national physics honor society, Gustavus Adolphus College (2005)
  - Julian A. Crawford memorial Prize in Physics, Gustavus Adolphus College (2004)
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#### **Proposals:**

- Principle Investigator, “Mapping the [NII] 122 micron line in high-z galaxies,” *Atacama Large Millimeter Array (ALMA) Early Science Proposal*, selected from 900 submissions as one of the 100 high priority proposals to be observed during the ALMA Early Science phase (2011-2012)
  - Principle Investigator, “A Fine-Structure Line Survey of SMMJ02399”, *Herschel Space Observatory’s Open Time 2 Proposal*, submitted for review (September 2011)
  - Co-Investigator, “Far-IR Fine-Structure Lines in Distant Galaxies,” *Caltech Submillimeter Observatory*, An ongoing project to study the far-IR fine structure lines from high-redshift galaxies. To date this project has been awarded ~75 nights of observatory time.
  - Co-Investigator, “A PACS Redshift 1-2 Oxygen Survey: Leveraging the ZEUS [CII] Detections,” *Herschel Space Observatory’s Open Time 1 Proposal*, awarded 46 hours of observing time (2010 - 2011)
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**Professional Membership:**

- *American Physical Society*, Student Member, since 2004
  - *American Association of Physics Teachers*, Student Member, since 2006
  - *American Astronomical Society*, Junior Member, since 2009
  - *International Society For Optics and Photonics (SPIE)*, Student Member, since 2010
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**Refereed Publications:**

**Ferkinhoff, C. D.**, Brisbin, D., Nikola, T., Parshley, S. C., Stacey, G. J., Phillips, T. G., Falgarone, E., Benford, D. J., Staguhn, J. G., & Tucker, C. E., "First Detections of the [NII] 122  $\mu\text{m}$  Line at High Redshift: Demonstrating the Utility of the Line for Studying Galaxies in the Early Universe." *The Astrophysical Journal*, **740**, L29 (Oct. 2011).

Nikola, T., Stacey, G.J., Brisbin, D., **Ferkinhoff, C. D.**, Hailey-Dunsheath, S., Parshley, S.C., & Tucker, C. "Mid-J CO Emission From NGC 891: Microturbulent Molecular Shocks in Normal Star Forming Galaxies", 2011, accepted for publication in *The Astrophysical Journal*.

**Ferkinhoff, C. D.**, Hailey-Dunsheath, S., Nikola, T., Parshley, S. C., Stacey, G. J., Benford, D. J., & Staguhn, J. G., "First Detection of the [O III] 88  $\mu\text{m}$  Line at High Redshifts: Characterizing the Starburst and Narrow-Line Regions in Extreme Luminosity Systems. " *The Astrophysical Journal*, **714**, L147 (May 2010).

Stacey, G. J., Hailey-Dunsheath, S., **Ferkinhoff, C. D.**, T. Nikola, S. C. Parshley, D. J. Benford, J. G. Staguhn, and N. Fiolet. "A 158  $\mu\text{m}$  [CII] Line Survey of Galaxies at  $z\sim 1-2$ : An Indicator of Star Formation in the Early Universe.." *The Astrophysical Journal*, **724**, 957 (Dec. 2010).

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**Non-refereed Publications:**

**Ferkinhoff, C. D.**, & Madison, D., "In a galaxy not quite so far away", Ask an Astronomer @ Cornell University Podcast, Episode 006 (Oct. 2011).

**Ferkinhoff, C. D.**, Nikola, T., Parshley, S. C., Stacey, G. J., Irwin, Cho, H. M., and Halpern, M., "ZEUS-2: a second generation submillimeter grating spectrometer for exploring distant galaxies." in [*Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*], *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series* **7741** (July 2010).

**Ferkinhoff, C. D.**, Hailey-Dunsheath, S., Nikola, T., Oberst, T. E., Parshley, S. C., Stacey, G. J., Benford, D. G., and Staguhn, J. G. "[CII] At  $z \sim 1-2$ : Observing Star Formation In The Early Universe With Zeus(1&2)." *American Astronomical Society*, 42, Washington, DC (2010).

Stacey, G. C.; Hailey-Dunsheath, S.; Nikola, T.; Oberst, T. E.; Parshley, S. C.; Brisbin, D.; **Ferkinhoff, C. D.**; Benford, D.; Staguhn, J., “The Redshift ( $z$ ) and Early Universe Spectrometer (ZEUS): Design and First Science Results”, *2009 USNC/URSI annual meeting*, Boulder, CO (Jan. 2009)

Niederriter, C. F., **Ferkinhoff, C. D.**, Lee, J. A., Sieling, J.D., Berg, D.A., “Renewable Energy Projects for Students at a Liberal Arts College”, Presented at the *American Association of Physics Teachers Meeting*, Chicago, IL (Feb. 2009).

Niederriter, C.F.; **Ferkinhoff, C. D.**; Lee, J. A.; Hayek, S. G. Wind? The Feasibility of Wind Power at Gustavus Adolphus College, Presented at the *American Association of Physics Teachers Meeting*, Salt Lake City, UT (Aug. 2005)

**Ferkinhoff, C. D.**, and Lee, J. A. “Worth while wind? The Feasibility of wind power at Gustavus”, Presented at the Fall 2004 Meeting, *Minnesota section of the American Association of Physics Teachers*, Winona MN (Oct. 2004).

**Ferkinhoff, C. D.**, and Lee, J. A., “Worth While Wind? The Feasibility of Wind Power at Gustavus Adolphus College”, *Sigma Xi Symposium*, Gustavus Adolphus College (April 2004)