

Elizabeth A. K. Adams

CONTACT INFORMATION

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EDUCATION

Cornell University, Ithaca, NY, USA
Ph.D., Astronomy & Astrophysics, January 2014
• Thesis Topic: Ultra-compact High Velocity Clouds in the ALFALFA HI Survey: Candidate Local Group Galaxies?
• Advisors: Professor Martha Haynes and Professor Riccardo Giovanelli
M.S. in Astronomy & Astrophysics, May 2010

Indiana University, Bloomington, Indiana
B.S. Mathematics, May 2007
B.S., Astronomy & Astrophysics, May 2007
• With highest distinction and general honors
• Astronomy & Astrophysics degree with honors
• Astronomy advisor: Professor Liese van Zee

Australian National University, Canberra, Australia
Study Abroad, July 2004 - June 2005
• Advisor: Professor Peter Wood

RESEARCH INTERESTS

Galaxy surveys; galaxy evolution and formation; gas content of galaxies; low mass galaxies; optical and radio observations; radio interferometry; signal extraction; low surface brightness HI

APPOINTMENTS

Postdoctoral Fellow at ASTRON Netherlands Institute for Radio Astronomy	2013-present
Graduate Research Assistant (Cornell University)	2012-2013
NSF Graduate Research Fellow (Cornell University)	2008-2010, 2011-2012
Teaching Assistant for Astronomy 1101 and 1102 (Cornell University)	2010-2011
Patten Z. Carter '25 and NASA/New York Space Grant Fellow (Cornell University)	2007-2008

RESEARCH EXPERIENCE

ASTRON:
Postdoctoral Research
WSRT HI imaging of low mass galaxies and low surface brightness galaxy candidates 2013-present
Scientific commissioning of Apertif 2016

Cornell University:
Graduate Research
Searching for missing Local Group galaxies within the ALFALFA survey 2009-2013
Exploring galaxy interactions via Gadget-2 simulations of the Leo Triplet 2008-2009

Indiana University:
Undergraduate Research
Examination of dwarf irregular galaxies and the Tully-Fisher relation 2005-2007
Examination of mass loss of red giants in M15 2003-2004

University of Hawaii, Institute for Astronomy:
Research Experience for Undergraduates
Photometric redshifts of intermediate redshift massive galaxy clusters Summer 2006

	Australian National University, Mt. Stromlo: <i>Summer Research Scholarship</i> Causes of long period red giant variables in the Large Magellanic Cloud	2005
GRANTS AND FELLOWSHIPS	Cornell University Graduate School Conference Grant NSF Graduate Research Fellowship Patten Z. Carter 25 Fellowship, Cornell Astronomy NASA/New York Space Grant Fellowship, Cornell Astronomy Goldwater Scholar	2010, 2011 2007-2012 2007-2008 2007-2008 2006-2007
HONORS AND AWARDS	Eleanor York Prize for excellence in research, teaching and service, Cornell Astronomy Benson Leister Peer-Awarded Fellowship, Cornell Astronomy AAS Chambliss Student Achievement Award Hollis and Grete Johnson Award for Excellence in Student Research, IU Astronomy Astronomy Alumni Award for Overall Academic Excellence, IU Herman B Wells Scholar, Indiana University	2010 2010 2007 2006 2006 2002-2006
STUDENT SUPERVISION	ASTRON/JIVE Summer Student Programme <i>Anoj Khadka, A remarkable HI massive galaxy, co-supervised with Dr. Kelley Hess</i> Calibrated, reduced and imaged four datasets from the Australia Telescope Compact Array; produced HI maps and velocity fields <i>Bahar Bidaran, Searching for a cool neutral medium in UCHVCs</i> Wrote code for fitting Gaussian components to HI data cubes; produced velocity fields and velocity dispersion maps; presented results in a poster at <i>Life-cycle of gas in galaxies: A local perspective</i>	2016 2015
TEACHING EXPERIENCE	Cornell University <i>ALS6015: The Practice of Teaching in Higher Education</i> Course served as an overview of teaching in higher education; included syllabus development, designing course assessments and more <i>Center for Astronomy Education Tier I Teaching Excellence Workshop</i> Attended a two day workshop focused on creating learner-centered teaching environments in introductory astronomy courses. <i>Teaching Assistant, Astronomy 1101 and 1102</i> Introductory astronomy courses for non-majors. Taught two sections a semester, led help sessions, guest lectured, proctored exams. Indiana University <i>Undergraduate Instructor, A118 and math tutor center</i> A118: Finite mathematics for social and biological sciences; proctored exams, led help sessions. Tutor center: Tutored students in precalculus and finite mathematics courses for eight hours a week.	Spring 2012 Spring 2011 August 2009-May 2010 August 2005-May 2007
EDUCATIONAL AND PUBLIC OUTREACH ACTIVITIES	<i>Girlsday</i> Helped run "Chatten met astronomen", a workshop to help participants recognize themselves in professional astronomers <i>ASTRON Open Dag</i> Helped with hands-on activities to introduce the public to astronomy	2014-2016 2013,2015

	<i>Undergraduate ALFALFA Workshop</i>	2010-2012
	Gave invited talks, organized hands-on activities and trained undergraduates to use the Arecibo radio telescope	
	<i>Curious About Astronomy? Ask an Astronomer</i>	2007-2013
	curious.astro.cornell.edu: Answer questions submitted via email; organize a monthly podcast and have helped produce 5 podcasts; served as a panelist for two live events and organized another panel	
	<i>Expanding Your Horizons in Science, Math and Engineering</i>	2009-2012
	Annual conference for 7-9 grade girls. Ran (2010-2012) and assisted (2009) with Rockets workshop.	
	<i>Focus for Teens Astronomy Program</i>	2009-2012
	Developed and ran various workshops in Astronomy for this 4H affiliated program run at Cornell.	
PROFESSIONAL DEVELOPMENT	<i>Synthesis Imaging Workshop</i>	2010
	A week-long workshop including lectures on synthesis imaging and hands-on tutorials.	
	<i>Data Reduction Workshop</i>	2011
	Three day workshop on using CASA to calibrate and image (E)VLA data.	
	<i>Python Workshops</i>	2013-2014
	"Introduction to Python and Working with Astronomical Data", "The programming language python", "Numerical Python", and "Advanced Python"	
PROFESSIONAL ACTIVITIES	Member of the ASTRON Diversity Committee	2016
	Member of a science review panel for the National Radio Astronomy Observatory	2016
	Organized the ASTRON/JIVE weekly colloquium	2015-2016
	Organized the conference "Life-cycle of gas in galaxies: A local perspective"	2015
	Organize and staff the ASTRON booth at the American Astronomical Society meeting	2014-present
	Organized a monthly joint HI meeting between ASTRON and Kapteyn	2013-2015
	Instituted and organized a weekly colloquium journal club	2011-2013
	Organized Galaxy Lunch weekly talk series	2009-2011
	Treasurer for Astronomy Grads Network, Cornell University astronomy graduate student group; instituted weekly seminar series and organized professional development activities	2008-2010
OBSERVING PROPOSALS	Principal Investigator	
	<ul style="list-style-type: none"> • <i>AGC226067: A dwarf galaxy or two on the brink of formation?</i> Awarded 30 hours on GMRT; proposal code 29_036 • <i>HI Substructure and Kinematics of Candidate Local Group Galaxies</i> Awarded 14 hours VLA/D under proposal code 15B-079 • <i>Ultra-compact High Velocity Clouds: Local Group Minihalos?</i> Awarded 312 hours on WSRT; proposal codes R13B007 and R14A017 • <i>Extreme M_{HI}/L systems detected by ALFALFA</i> Awarded 273 hours on WSRT; proposal code R13B001 • <i>Optical Imaging of Local Group Galaxy Candidates from the ALFALFA Survey</i> Awarded 4 nights for WIYN/pODI; proposal code N0253 • <i>Ultra-Compact High Velocity Clouds: Candidate Galaxies in the Local Group</i> Awarded 143 hours on the Very Large Array; proposal codes 10A-205, 12A-292, 13A-248, 14A-178 • <i>Confirmation of Ultra-compact High Velocity Clouds from the ALFALFA Survey</i> Awarded 6 hours on the Green Bank Telescope; proposal code 12B-059 • <i>Ultra-compact High Velocity Clouds in the ALFALFA Survey</i> Awarded 15 hours at Arecibo Observatory; proposal code A2664 • <i>Very Massive Underluminous Galaxies from ALFALFA</i> Awarded 40 hours on the Giant Metrewave Radio Telescope; proposal code 19_005 	

Co-Investigator (Selected)

- *Magnetizing the universe with starbursting dwarf galaxies*
Awarded 8.5 hours on LOFAR; proposal code LC6_017
- *A New Extremely Metal-Poor Galaxy Discovered by ALFALFA*
Awarded 25 hours on VLA; proposal codes 15B-388 (Director's Discretionary Time), 16A-134
- *An accurate measurement of the Baryonic Tully-Fisher Relation with very gas-dominated galaxies*
Awarded 169 hours on WSRT; proposal code R14A014
- *SHIELD II: Low Luminosity, Low Metallicity Galaxies And Their Dark Matter Halos*
Awarded 286 hours on WSRT; proposal code R14A018
- *Are Ultra-Compact High-Velocity Clouds Minihalos? Constraints from Quasar Absorption Lines*
Awarded 23 Hubble Space Telescope orbits; proposal id 12614
- *Leo P: A New Extreme Dwarf Galaxy Discovered by ALFALFA*
Awarded 9 hours on the Very Large Array; proposal codes 12A-456 (DDT), 13A-026
- *An EVLA HI Survey of Extremely Low-Mass Galaxies*
Awarded 180 hours on the Very Large Array; proposal code 10B-187
- *Fundamental Parameters of the SHIELD Galaxies*
Awarded 12 Hubble Space Telescope orbits and 14 hours for warm Spitzer; proposal id 12658

TALKS

Invited Talks

- *Probing the extreme edges of galaxy formation with ALFALFA*, University of Minnesota colloquium, September 2015
- *Probing the extreme edges of galaxy formation with ALFALFA*, Macalester College colloquium, September 2015
- *Searching for Local Group dwarfs via their HI content: Ultra-compact high velocity clouds in the ALFALFA HI survey*, AIfA/MPIfR colloquium, October 2014
- *Ultra-compact High Velocity Clouds: Candidate Local Group Galaxies?*, Tel Aviv University symposium, March 2014
- *The 21cm ALFALFA Survey and Candidate Local Group Galaxies*, Mini-Workshop on Fundamental Processes that Shape Galaxies, Hebrew University of Jerusalem, March 2014
- *Arecibo and Neutral Hydrogen*, Arecibo Town Hall, American Astronomical Society Meeting, January 2013
- *Hunting for Minihalos in ALFALFA*, Near Field Cosmology as a Probe of Early Universe, Dark Matter, and Gravity, Annapolis, MD, November 2011

Selected Contributed Talks

- *MeerKAT and the Smallest Galaxies*, MeerKAT science workshop, Stellenbosch, May 2016
- *Tracing Small-scale Dark Matter Structure through HI*, Dark matter on the smallest scales, Lorentz Center, April 2016
- *Apertif Surveys and the Smallest Galaxies*, PHISCC meeting, Cape Town, February 2016
- *WSRT HI imaging of candidate gas-bearing dark matter halos in the Local Group*, American Astronomical Society meeting, January 2016
- *HI observation of gas-rich dark matter halos*, First stars, galaxies and black holes, Groningen University, June 2015
- *Searching for gas-bearing dark matter halos in the Local Group*, Netherlands Astronomy Conference, May 2015
- *Ultra-compact High Velocity Clouds: Candidate Local Group Galaxies?*, Netherlands Astronomy Conference, May 2014
- *Ultra-compact High Velocity Clouds in the ALFALFA Survey: Galactic or Extragalactic?*, American Astronomical Society Meeting, January 2013

Public Talks

- *Understanding the Discrepancy Between Simulations and Observations*, Kopernik Observatory Winter Star Party, January 2012

HIghMass - High HI Mass, HI-rich Galaxies at $z \sim 0$: Combined HI and H₂ Observations G. Hal-
lenbeck, S. Huang, K. Spekkens, M. P. Haynes, R. Giovanelli, **E. A. K. Adams**, J. Brinchmann,
J. Carpenter, J. Chengalur, L. K. Hunt, K. L. Masters, and A. Saintonge 2016, *AJ*, in press,
arXiv:1610.03859

Identifying Candidate Galaxies in WSRT HI Imaging of Ultra-compact High Velocity Clouds **E. A.
K. Adams**, T. A. Oosterloo, J. M. Cannon, R. Giovanelli, and M. P. Haynes 2016, *A&A*, in press,
arXiv:1609.05377

SHIELD: Comparing Gas and Star Formation in Low Mass Galaxies Y. G. Teich, A. T. McNichols,
E. Nims, J. M. Cannon, **E. A. K. Adams**, R. Giovanelli, M. P. Haynes, K. B. W. McQuinn, J.
J. Salzer, E. D. Skillman, E. Z. Bernstein-Cooper, A. Dolphin, E. C. Elson, N. Naurberg, G. I.
G. Józsa, J. Ott, A. Saintonge, S. R. Warren, I. Cave, C. Hagen, S. Huang, S. Janowiecki, M. V.
Marshall, S. Moody, C. M. Thomann, and A. Van Sistine 2016, *ApJ*, in press, arXiv:1609.05375

SHIELD: Neutral Gas Kinematics and Dynamics A. T. McNichols, Y. G. Teich, E. Nims, J. M.
Cannon, **E. A. K. Adams**, R. Giovanelli, M. P. Haynes, G. I. G. Józsa, K. B. W. McQuinn, J. J.
Salzer, E. D. Skillman, S. R. Warren, A. Dolphin, E. C. Elson, N. Naurberg, J. Ott, A. Saintonge,
I. Cave, C. Hagen, S. Huang, S. Janowiecki, M. V. Marshall, C. M. Thomann, and A. Van Sistine
2016, *ApJ*, in press, arXiv:1609.05376

ALFALFA and WSRT Imaging of Extended HI Features in the Leo Cloud of Galaxies L. Leisman,
M. P. Haynes, R. Giovanelli, G. Jozsa, **E. A. K. Adams**, and K. M. Hess 2016, *MNRAS*, accepted,
arXiv:1608.08986

ALFALFA Discovery of the Most Metal-poor Gas-rich Galaxy Known: AGC 198691 A. S. Hirschauer,
J. J. Salzer, E. D. Skillman, D. Berg, K. B. W. McQuinn, J. M. Cannon, A. J. R. Gordon, M.
P. Haynes, R. Giovanelli, **E. A. K. Adams**, S. Janowiecki, K. L. Rhode, R. W. Pogge, K. V.
Croxall, and Erik Aver 2016, *ApJ*, 822, 108

*An accurate measurement of the baryonic Tully-Fisher relation with heavily gas-dominated ALFALFA
galaxies* E. Papastergis, **E. A. K. Adams**, and J. M. van der Hulst 2016, *A&A*, 593, 39

Leo P: How Many Metals Can a Very Low Mass, Isolated Galaxy Retain? K. B. W. McQuinn, E.
D. Skillman, A. Dolphin, J. M. Cannon, J. J. Salzer, K. L. Rhode, **E. A. K. Adams**, D. Berg, R.
Giovanelli, and M. P. Haynes 2015, *ApJL*, 815, L17

CARMA CO Observations of Three Extremely Metal-poor, Star-forming Galaxies S. R. Warren, E.
Molter, J. M. Cannon, A. D. Bolatto, **E. A. K. Adams**, E. Z. Bernstein-Cooper, R. Giovanelli, M.
P. Haynes, R. Herrera-Camus, K. Jameson, K. B. W. McQuinn, K. L. Rhode, J. J. Salzer, and E.
D. Skillman 2015, *ApJ*, 814, 30

Leo P: An Unquenched Very Low-mass Galaxy K. B. W. McQuinn, E. D. Skillman, A. Dolphin, J.
M. Cannon, J. J. Salzer, K. L. Rhode, **E. A. K. Adams**, D. Berg, R. Giovanelli, L. Girardi, and
M. P. Haynes 2015, *ApJ*, 812, 158

*Searching for Optical Counterparts to Ultra-compact High Velocity Clouds: Possible Detection of a
Counterpart to AGC 198606* W. Janesh, K. L. Rhode, J. J. Salzer, S. Janowiecki, **E. A. K. Adams**,
M. P. Haynes, R. Giovanelli, J. M. Cannon, and R. R. Muñoz 2015, *ApJ*, 811, 35

AGC 226067: A possible interacting low-mass system **E. A. K. Adams**, J. M. Cannon, K. L.
Rhode, W. F. Janesh, S. Janowiecki, L. Leisman, R. Giovanelli, M. P. Haynes, T. A. Oosterloo, J.
J. Salzer and T. Zaidi 2015 *A&A*, 580, 134

- Characterizing the Star Formation of the Low-mass Shield Galaxies from Hubble Space Telescope Imaging* K. B. W. McQuinn, J. M. Cannon, A. E. Dolphin, E. D. Skillman, M. P. Haynes, J. E. Simones, J. J. Salzer, **E. A. K. Adams**, E. C. Elson, R. Giovanelli, and J. Ott 2015, ApJ, 802, 66
- (Almost) Dark HI Sources in the ALFALFA Survey: The Intriguing Case of HI1232+20*, S. Janowiecki, L. Leisman, G. Jozsa, J. J. Salzer, M. P. Haynes, R. Giovanelli, K. L. Rhode, J. M. Cannon, **E. A. K. Adams**, W. F. Janesh 2015, ApJ, 801, 96
- The ALFALFA “Almost Dark” Campaign: Pilot VLA HI Observations of Five High Mass-To-Light Ratio Systems*, J. M. Cannon, C. P. Martinkus, L. Leisman, M. P. Haynes, **E. A. K. Adams**, R. Giovanelli, G. Hallenbeck, S. Jaowiecki, M. Jones, G. I. G. Jozsa, R. A. Koopmann, N. Nichols, E. Papastergis, K. L. Rhode, J. J. Salzer, P. Troischt 2015, AJ, 149, 72
- AGC198606: A gas-bearing dark matter minihalo?*, **E. A. K. Adams**, Y. Faerman, W. F. Janesh, S. Janowiecki, T. A. Oosterloo, K. L. Rhode, R. Giovanelli, M. P. Haynes, J. J. Salzer, A. Sternberg, J. M. Cannon, R. R. Munoz 2015, A&A, 573, 3
- HighMass – High HI Mass, HI-rich Galaxies at $z \approx 0$ High-resolution VLA Imaging of UGC 9037 and UGC 12506*, G. Hallenbeck, S. Huang, K. Spekkens, M. P. Haynes, R. Giovanelli, **E. A. K. Adams**, J. Brinchmann, J. Chengalur, L. K. Hunt, K. L. Masters, A. Saintonge 2014, AJ, 148, 69
- HighMass-High HI Mass, HI-rich Galaxies at $z \approx 0$ Sample Definition, Optical and H α Imaging, and Star Formation Properties*, S. Huang, M. P. Haynes, R. Giovanelli, G. Hallenbeck, M. G. Jones, **E. A. K. Adams**, J. Brinchmann, J. N. Chengalur, L. K. Hunt, K. L. Masters, S. Matsushita, A. Saintonge, K. Spekkens 2014, ApJ, 793, 40
- ALFALFA Discovery of the Nearby Gas-rich Dwarf Galaxy Leo P. V. Neutral Gas Dynamics and Kinematics*, E. Z. Bernstein-Cooper, J. M. Cannon, E. C. Elson, S. R. Warren, J. Chengalur, E. D. Skillman, **E. A. K. Adams**, A. D. Bolatto, R. Giovanelli, M. P. Haynes, K. B. W. McQuinn, S. A. Pardy, K. L. Rhode, J. J. Salzer 2014, AJ, 148, 35
- Distance Determinations to SHIELD Galaxies from Hubble Space Telescope Imaging*, K. B. W. McQuinn, J. M. Cannon, A. E. Dolphin, E. D. Skillman, J. J. Salzer, M. P. Haynes, **E. A. K. Adams**, I. Cave, E. C. Elson, R. Giovanelli, J. Ott, A. Saintonge 2014, ApJ, 785, 3
- ALFALFA Discovery of the Nearby Gas-rich Dwarf Galaxy Leo P. IV. Distance Measurement from LBT Optical Imaging*, McQuinn, K. B. W., Skillman, E. D., Berg, D. Cannon, J. M., Salzer, J. J., **Adams, E. A. K.**, Dolphin, A., Giovanelli, R., Haynes, M. P., Rhode, K. L. 2013, AJ, 146, 145
- ALFALFA Discovery of a Nearby Gas-Rich Dwarf Galaxy. I. HI Properties of Leo P*, Giovanelli, R., Haynes, M. P., **Adams, E. A. K.**, Cannon, J. M., Rhode, K. L., Salzer, J. J., Skillman, E. D., Bernstein-Cooper, E., McQuinn, K. B. W. 2013, 146, 15
- ALFALFA Discovery of the Nearby Gas-Rich Dwarf Galaxy Leo P. II. Optical Imaging Observations*, Rhode, K. L., Salzer, J. J., Haurberg, N. C., Van Sistine, A., Young, M. D., Haynes, M. P., Giovanelli, R., Cannon, J. M., Skillman, E. D., McQuinn, K. 2012, **Adams, E. A. K.** 2013, AJ, 145, 149
- ALFALFA Discovery of the Nearby Gas-Rich Dwarf Galaxy Leo P. III. An Extremely Metal Deficient Galaxy*, Skillman, E. D., Salzer, J. J., Berg, D. A., Pogge, R. W., Haurberg, N. C., Cannon, J. M., Aver, E., Olive, K. A., Giovanelli, R., Haynes, M. P., **Adams, E. A. K.**, McQuinn, K. B. W., and Rhode, K. L. 2013, AJ, 146, 3
- A Catalog of Ultra-compact High Velocity Clouds from the ALFALFA Survey: Local Group Galaxy Candidates?*, **Adams, E. A. K.**, Giovanelli, R., Haynes, M. P. 2013, ApJ, 768, 77

The Arecibo Legacy Fast ALFA Survey: The $\alpha.40$ HI Source Catalog, Its Characteristics and Their Impact on the Derivation of the HI Mass Function, Haynes, M. P., Giovanelli, R., Martin, A. M., Hess, K. M., Saintonge, A., **Adams, E. A. K.**, and 18 others, 2011, AJ, 142, 170

The Survey of HI in Extremely Low-mass Dwarfs (SHIELD), Cannon, J. M., Giovanelli, R., Haynes, M. P., Janowiecki, S., Parker, S., Salzer, J. J., **Adams, E. A. K.**, 10 others, 2011, ApJ, 739, L22

Are Newly Discovered H I High-Velocity Clouds Minihalos in the Local Group?, Giovanelli, R., Haynes, M. P., Kent, B. R., & **Adams, E. A. K.** 2010, ApJ, 708, L22

CONFERENCE
PROCEEDINGS

MeerKAT and the Smallest Galaxies, **E. A. K. Adams** and T. A. Oosterloo, submitted

The SKA view of the Neutral Interstellar Medium in Galaxies, W. J. G. de Blok, F. Fraternali, G. H. Heald, **E. A. K. Adams**, A. Bosma, B. S. Koribalski, the HI Science Working Group, PoS, AASKA14, 129, arXiv:1501.01211

Velocity monitoring of sequence-E red giants, **Adams, E.**, Wood, P. R., Cioni, M.-R., Memorie della Societa Astronomica Italiana, 2006, 77, 537