

Emily E. Richards

CONTACT INFORMATION	Indiana University Department of Astronomy 727 East 3rd Street Bloomington, IN 47405-7105	<i>Phone:</i> (812) 855-5136 <i>Email:</i> er7@indiana.edu
RESEARCH INTERESTS	Galaxy formation and evolution; galaxy kinematics; radio interferometry	
EDUCATION	Ph.D., Astronomy , Indiana University Minor: Scientific Computing Advisor: Dr. Liese van Zee	Anticipated May 2016
	M.A., Astronomy , Indiana University	2013
	B.S., Physics & Astronomy , University of Iowa Minor: Music Advisor: Dr. Cornelia C. Lang	2011
RESEARCH EXPERIENCE	Research Assistant , Indiana University Advisor: Dr. Liese van Zee Neutral hydrogen kinematic study of galaxies; galaxy surface photometry.	2011-present
	Research Assistant , University of Iowa Advisor: Dr. Cornelia C. Lang Study of the interstellar medium in the Galactic Center; search for massive stellar clusters in the Galaxy.	2008-2011
	REU Student , University of Wisconsin-Madison University of Wisconsin-Madison Research Experience for Undergraduates Advisor: Dr. Sebastian Heinz Spectral analysis of the jet-powered shell from the X-ray binary Cygnus X-1.	Summer 2010
TEACHING EXPERIENCE	Instructor, A100: The Solar System Indiana University Introductory astronomy course for non-science majors. Topics include the celestial sphere, seasons and moon phases, properties of light, the sun, history of astronomy, origin of the solar system, properties and exploration of planets and other bodies in the solar system, and extrasolar planets.	Summer 2013
	Associate Instructor, Various Courses Indiana University Responsibilities include guest lecturing, holding office hours, grading, running rooftop observing sessions, attending all classes, and teaching telescope observing labs. Courses: General Astronomy I (A221), Stars and Galaxies (A105), Modern Observational Techniques (A305), General Astronomy II (A222), Solar System (A100).	2011-present

OBSERVING EXPERIENCE	Wisconsin-Indiana-Yale-NOAO (WIYN) 0.9m telescope	2012-present
	Kitt Peak National Observatory 27 nights from three Principal Investigator proposals	
	Wisconsin-Indiana-Yale-NOAO (WIYN) 3.5m telescope	2014
	4 nights from one co-Principal Investigator proposal	
	Very Large Array Radio Interferometer	2012-present
	63 hours from one Principal Investigator proposal Archival data processing and analysis	
PROFESSIONAL TALKS	Massive Stellar Clusters in the Galaxy: Multiwavelength Observations of New Candidate Clusters	
	Board of Regents State of Iowa	May 2011
	University of Iowa Astronomy Seminar, Honors Colloquium	April 2010
	Spectra of the Jet-Powered Shell of Cygnus X-1	July 2010
	University of Wisconsin-Madison REU Program	
PUBLIC AND COMMUNITY OUTREACH	Kirkwood Observatory Tours	2011-present
	Indiana University Host evening public observing sessions for the Bloomington, IN community. Give private tours of the observatory for local school and campus groups.	
	Physics and Astronomy Open House	2011-present
	Indiana University Participate in running hands-on astronomy activities for the Physics and Astronomy Open House, an annual public outreach event for children and adults throughout southern Indiana.	
	Indiana State Science Olympiad	2011-present
	Indiana University Assist in writing and grading of the Astronomy exam for the annual Indiana State Science Olympiad Competition for middle and high school students.	
	Outreach and Demonstration Shows	2007-2011
	University of Iowa Participated in and helped organize various outreach activities and annual Department of Physics & Astronomy Demonstration Show.	
	Observatory Volunteer	2007-2011
	Cedar Amateur Astronomers, Palisades-Dows Observatory Volunteered for public outreach events for the Iowa City & Cedar Rapids, IA communities.	

HONORS AND AWARDS	Chambliss Astronomy Achievement Student Award	Summer 2013
	222 nd Meeting of the American Astronomical Society	
	Provost's Travel Award for Women in Science	2013-2014
	Indiana University	
	Old Gold Scholarship	2007-2011
	University of Iowa	
COMPUTER SKILLS	Edward B. Nelson Scholarship	2007
	Department of Physics & Astronomy, University of Iowa	
	Charles Wert Scholarship	2007-2011
	Department of Physics & Astronomy, University of Iowa	
	Horatio Alger Association Scholarship	2007-2011
	Horatio Alger Association for Distinguished Americans, Inc.	
PROFESSIONAL MEMBERSHIPS	Programming Languages	
	C (limited working proficiency), Linux/Unix shell scripting (limited working proficiency), Fortran (elementary proficiency)	
REFEREED PUBLICATIONS	Software	
	L ^A T _E X (full professional proficiency), AIPS (full professional proficiency), CASA (full professional proficiency), GIPSY (full professional proficiency), SuperMongo (full professional proficiency), IRAF (professional proficiency), Mathematica (limited working proficiency), MatLab (limited working proficiency), IDL (elementary proficiency), Paraview (elementary proficiency)	
NON-REFEREED PUBLICATIONS	American Astronomical Society	2013-present
	Society of Physics Students	2008-2011
REFEREED PUBLICATIONS	Department of Physics & Astronomy, University of Iowa	
	Officer, President	
NON-REFEREED PUBLICATIONS	1. E. E. Richards , C. C. Lang, C. Trombley, and D. F. Figer, <i>Multiwavelength Observations of Massive Stellar Cluster Candidates in the Galaxy</i> , 2012, The Astrophysical Journal, 144, 89	
	7. E. E. Richards , L. van Zee, D. C. Wavle, K. L. Barnes, S. Staudaher, D. A. Dale, D. Calzetti, J. J. Dalcanton, J. S. Bullock, R. Chandar, <i>Baryonic Distributions in the Dark Matter Halo of NGC 4088</i> , 2013, (Structure and Dynamics of Disk Galaxies Conference poster)	
NON-REFEREED PUBLICATIONS	6. L. van Zee, D. Wavle, E. E. Richards , K. L. Barnes, S. Staudaher, D. A. Dale, D. Calzetti, J. Dalcanton, J. Bullock, R. Chandar, J. L. Hinz, <i>Structure Formation and Dark Matter Distributions in Dwarf Irregular Galaxies</i> , 2013, Probes of Dark Matter on Galaxy Scales, 30305	
	5. E. E. Richards , L. van Zee, D. C. Wavle, K. L. Barnes, S. Staudaher, D. A. Dale, D. Calzetti, J. J. Dalcanton, J. S. Bullock, R. Chandar, <i>Baryonic Distributions in</i>	

the Dark Matter Halo of NGC 3992, 2013, American Astronomical Society Meeting Abstracts, 222, #314.04

4. D. Wavle, L. van Zee, **E. E. Richards**, K. L. Barnes, S. Staudaher, D. A. Dale, D. Calzettia, J. Dalcanton, J. Bullock, R. Chandar, J. L. Hinz, *Kinematic Analysis of Nine Low Mass Gas-Rich Galaxies*, 2013, American Astronomical Society Meeting Abstracts, 222, #314.12
3. P. Sell, S. Heinz, **E. E. Richards**, D. Russell, E. Gallo, S. Markoff, R. Fender, M. Nowak, *The Shell-Shocked Interstellar Medium Near Cygnus X-1*, 2013, American Astronomical Society Meeting Abstracts, 222, #214.02
2. **E. E. Richards**, C. C. Lang, C. Trombley, D. F. Figer, HST/NICMOS GC Paschen Alpha Team, *Multiwavelength Observations of the Most Massive Stellar Clusters in the Galaxy*, 2011, Bulletin of the American Astronomical Society, 43, #241.07
1. **E. E. Richards**, T. Zimmermann, C. C. Lang, D. F. Figer, B. Davies, C. Trombley, *Massive Stellar Clusters in the Galaxy: Multiwavelength Observations of New Candidate Clusters*, 2010, (University of Iowa Undergraduate Research Festival poster)