Chris T. Richardson

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Education

Ph.D. Program in Astrophysics, Michigan State University, 2008-2013.

M.S. Astrophysics, Michigan State University, 2010.

B.S. Physics and Applied Physics, Eastern Illinois University, 2008.

Minor: Mathematics
Honors: Magna Cum Laude, University Honors

Fields of Interest

Plasma Simulations, Nebular Astrophysics, Computational Astrophysics, Compact Objects, Physics and Astronomy Education

Academic Employment

Elon University, Department of Physics

Assistant Professor, Fall 2013 – Present

Michigan State University, Department of Physics and Astronomy

Postdoctoral Researcher, Jack Baldwin, Summer 2013

Research Assistant, Jack Baldwin, Spring 2011 – Spring 2013

Physics Tutor, Department of Physics and Astronomy, Spring 2011

Research Assistant, Ed Brown, Summer 2010 – Spring 2011

Research Assistant, Ed Brown, May – August 2009

Teaching Assistant, Fall 2008 – Spring 2010

Indiana University, Department of Physics

Research Experience for Undergraduates, Jim Musser, June – August 2007.

Eastern Illinois University, Department of Physics

Athletic Tutor in Physics, Mathematics, and Chemistry Cindy Tozer, 2006 – 2008.

Undergraduate Physics Grader, 2006 – 2008.

Undergraduate Physics Tutor, 2006 – 2008.

Research Assistant, Jie Zou, May – June 2006.

High School Physics Tutor, 2006 – 2007.

Undergraduate Research Students

Christopher Greene, 2015-Present

Elon College Fellow

Elena Meskhidze, 2013 - Present

Honors Fellow, Physics Department Research Award (2014), Summer Undergraduate Research Experience (2014), Lumen Scholar (2014-2016)

Emily Need, 2013 - 2014

Currently enrolled in Clemson University doctoral program in physics

Leadership Activities

Society of Physics Students Faculty Mentor, Elon University, 2014-Present

Physics & Astronomy Undergraduate Mentor, Women and Minorities in Physical Sciences (WAMPS), Monthly meetings with 3 students/year, Fall 2011 – Spring 2013

Member, Joint Institute for Nuclear Astrophysics (JINA) Journal Club, Michigan State University, Fall 2009 – Spring 2013

Member, Sigma Pi Sigma (Physics Society), Eastern Illinois University, Spring 2008

Vice President, Astronomy Club, Eastern Illinois University, Fall 2007 – Spring 2008

Member, University Honors College, Eastern Illinois University, Fall 2004 – Spring 2008

Honors, Awards, and Fellowships

FR&D Re-Assigned Time Fellowship, Elon University, 2016

FR&D Summer Research Fellowship, Elon University, 2015

CATL Travel Grant, Elon University, 2015

FR&D New Faculty Summer Research Salary, Elon University, 2014

2nd Prize Poster Presentation, Cyber-Infrastructure Days, Michigan State University, 2012

Young Alumni of the Year Nomination, Eastern Illinois University, 2012-2013

Thomas A. Kaplan Award, Graduate Student Presentation of the Year, Michigan State University, 2011-2012

Center for Integration of Research, Teaching, and Learning (CIRTL) Exchange Program, 2012

Future Academic Scholars in Teaching (FAST) Fellowship, Michigan State University, 2010-2012

Graduated First in Class of Physics Majors, Eastern Illinois University, 2008

NSF Research Experience for Undergraduates, Indiana University, 2007

Lewis T. White Award in Mathematics, Eastern Illinois University, 2007

Dean's List, Eastern Illinois University, 2006

G.B. Dudley Award in Physics, Eastern Illinois University, 2006

Ranked in Top 100 Sophomores, Eastern Illinois University, 2006

Irvin L. Sparks Award in Physics, Eastern Illinois University, 2005

Continuing Education Scholarship, Eastern Illinois University, 2004 – 2007

Grants and Computing Time

"Theoretical Modeling of Emission-Line Regions in Star Forming Galaxies." PI: Chris Richardson, NSF XSEDE project (Trestles supercomputer cluster), 2014. 300,000 CPU-Hours. $ 14,500.

"Optimally Emitting Regions in Emission-Line Galaxies." PI: Chris Richardson, NSF XSEDE project (Trestles supercomputer cluster), 2013. 50,000 CPU-Hours.

Honors College Undergraduate Research Grant, Eastern Illinois University, 2006

Refereed Publications

**asterisk indicates undergraduate student*

*Meskhidze, H.**, **Richardson, C. T.**, "An Atlas of Starburst Galaxy Equivalent Widths", *ApJS* (submitted)

Richardson, C. T., Allen, J. T., Baldwin, J. A., Hewitt, P. C., Ferland, G. J., Crider, A.,*Meskhidze, H.**, "Interpreting the Ionization Sequence in Star-Forming Galaxy Emission Line Spectra", *MNRAS*, accepted pending small revisions

Richardson, C. T., Allen, J. T., Baldwin, J. A., Hewitt, P. C., Ferland, G. J., "Interpreting the Ionization Sequence in AGN Emission-Line Spectra", 2014, *MNRAS*, 437, 2376

Xiang, W., Ferland, G. J., Baldwin, J. A., Loh, E. D., **Richardson, C. T.**, "Detecting the Rapidly Expanding Outer Shell of the Crab Nebula: Where to Look", 2013, *ApJ*, 774, 112

Allen, J. T., Hewitt, P. C., **Richardson, C.T.**, Ferland, G. J., Baldwin, J. A., "Classification and Analysis of Emission Line Galaxies Using Mean Field Independent Component Analysis", 2013, *MNRAS*, 430, 3510

Richardson, C. T., Baldwin, J. A., Ferland, G. J., Loh, E. D., Kuehn, C., Fabian, A. C., Salome, P., "The Nature of the H_2 Emitting Gas in the Crab Nebula", *MNRAS*, 2013, 430, 1257

Richardson, C. T., O'Shea, B. W., "Assessing Gender Differences in Response System Questions for an Introductory Physics Course", 2012, *AJP*, 2013, 81, 231

Loh, E. D., Baldwin, J. A., Ferland, G. J., Curtis, Z. K., **Richardson, C. T.**, Fabian, A. C., Salome, P., "H_2 Temperatures in the Crab Nebula", 2012, *MNRAS*, 421, 789

Zou, J., Lange, X., **Richardson, C.**, "Lattice thermal conductivity of nanoscale AlN/GaN/AlN heterostructures: Effects of partial phonon spatial confinement", 2006, *JAP*, 100, 10, 104309-104309-8.

Invited Talks

"The Crab Nebula: Our Local Young Supernova Remnant", Triad Starfest, Guilford Technical Community College, March 2015.

"Exoplanets: Is there another Earth?", Tectonic Plates Science Cafe, Elon NC, November 2014.

"The Nature of the H_2 Emitting Gas in the Crab Nebula", Colorado University (Boulder), CIRTL Exchange Program, February 2012.

"Assessing Gender Differences in Think-Pair-Share Questions for an Introductory Physics Course", Colorado University (Boulder), CIRTL Exchange Program, February 2012.

"A Type Ia Supernova Lifetime: Simmers to Detonations", Eastern Illinois University Physics and Astronomy Seminar, 2010.

Conference Presentations

**asterisk indicates undergraduate student*

Richardson, C. T., Allen, J. T., Baldwin, J. A., Hewett, P. C., Ferland, G. J., *Meskhidze, H.**, "A New Interpretation for the Variation in Starburst Galaxy Emission Line Spectra", American Astronomical Society, 2015, AAS, 22542501

*Meskhidze, H.**, **Richardson, C. T.**, "An Atlas of Starburst Galaxy Equivalent Widths", North Carolina Astronomers' Meeting, 2014, Guilford Technical Community College, Jamestown, NC

Richardson, C. T., Allen, J. T., Baldwin, J. A., Hewett, P. C., Ferland, G. J., "The Physical Parameter Responsible for the Variation in AGN and Star Forming Galaxies Emission Line Spectra", 2014, The Fate of Gas in Galaxies, Durham University, England, UK

Richardson, C. T., Baldwin J. A., Ferland G. J., Loh, E. D., Kuehn, C. A., Fabian, A., Salomé, P., "Plasma Simulations of the H2 Emitting Gas in the Crab Nebula", American Astronomical Society, 2013, AAS, 22133006

Richardson, C., "The Structure of Laminar C/O Flames in Type Ia Supernovae at Low Densities", 2010, Joint Institute for Nuclear Astrophysics (JINA) Frontiers

Poster Presentations

**asterisk indicates undergraduate student*

Richardson, C. , Crider, A., *Kaiser, B.**, "Detecting HII Regions in Z=0.1 Galaxies with Multi-Band SDSS Data", IAUGA Meeting #29, #74.90

*Meskhidze, H.**, **Richardson, C. T.**, Ferland, G. J., "An Atlas of Starburst Galaxy Emission Lines", 2015, AAS Meeting #225, #251.06

Richardson, C. T., Allen, J. T., Baldwin, J. A., Hewett, P. C., Ferland, G. J., "Identifying the Physical Parameter Responsible for the Ionization Sequence in Star Forming Galaxies", 2014, North Carolina Astronomers' Meeting, Guilford Technical Community College

Richardson, C. T., Allen, J. T., Baldwin, J. A., Hewett, P. C., Ferland, G. J., "The Physical Parameter Responsible for the Variation in AGN and Star Forming Galaxies Emission Line Spectra", 2014, The Fate of Gas in Galaxies, Durham University, England, UK

Richardson, C. T., Allen, J. T., Baldwin, J. A., Hewett, P. C., Ferland, G. J., "Identifying the Physical Parameter Responsible for the Ionization Sequence in Star Forming Galaxies", 2014, AAS Meeting #223, #252.01

Richardson, C. T., Baldwin, J. A., Ferland, G. J., Loh E. D., Kuehn C. A., O'Dell C. R., Fabian, A. C., Salome, P., "Numerical Simulations of the H_2 Emitting Gas in the Crab Nebula", 2012, Cyber-Infrastructure days, Michigan State University, **2nd Place Award**

Richardson, C. T., Baldwin, J. A., Ferland, G. J., Loh E. D., Kuehn C. A., O'Dell C. R., Fabian, A. C., Salome, P., "The Nature of the H_2 Emitting Gas in the Crab Nebula", 2012, AAS Meeting #220, #431.12

Kuehn, C., Loh, E. D., Baldwin, J. A., Ferland, G. J., Fabian, A. C., **Richardson, C. T.**, Salome, P., O'Dell, B., "The Molecular Content of the Crab Nebula", 2012, AAS Meeting #219, #239.15

Richardson, C. T. and O'Shea, B. W., "Assessing Gender Differences in Think-Pair-Share Questions for an Introductory Physics Course", CIRTL Forum, 2011

Richardson, C., "The Structure of Laminar C/O Flames in Type Ia Supernovae at Low Densities", 2010, Joint Institute for Nuclear Astrophysics (JINA) Frontiers