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Education

University of Colorado, Boulder, Colorado
Doctor of Philosophy: December 2005
Major: Astrophysics
Advisor: Dr. Erica Ellingson

Massachusetts Institute of Technology, Cambridge, Massachusetts
Master of Science: February 2001
Major: Physics
Advisor: Dr. Claude Canizares

University of Wisconsin, Milwaukee, Wisconsin
Bachelor of Science: August 1997
Major: Physics
Advisor: Dr. Marija Gajdardziska-Josifovska

Macalester College, St. Paul, Minnesota
Bachelor of Arts: May 1994
Major: English Literature/Creative Writing
Advisor: Dr. Alvin Greenberg

**Academic
Honors**

NASA Postdoctoral Program (NPP) Fellowship offer, 2008
McGill Postdoctoral Fellowship offer, 2008
Graduate Student Research Program Fellowship (NASA), Scientific
Advisor: Dr. Richard Mushotzky, September 2002 - August 2005
American Astronomical Society International Travel Grant, March 2004
Women's Forum of Colorado Foundation Scholarship, Fall 2001
Advanced Analysis Facility Internship, summer 1997
Dean's Honor List, spring 1997
Dean's Honor List, fall 1996
James Martin Scholarship, spring 1996
Dewitt Wallace Distinguished Scholar Award, 1990-1994
Taylor Grant, summer 1993

**Research
Experience**

Postdoctoral Research Associate for M. Donahue and M. Voit, Department of Physics and Astronomy, Michigan State University, East Lansing, MI, 2008-present

Postdoctoral Research Associate for C. Sarazin, Department of Astronomy, University of Virginia, Charlottesville, VA, 2005-2008.

Research Assistant, Center for Astrophysics and Space Research (CASA), University of Colorado, Boulder, CO, 2001-2005.

Data Analyst, Center for Space Research/CXC, Massachusetts Institute of Technology (MIT), Boston, MA, 2001.

Research Assistant, Center for Space Research (CSR), Massachusetts Institute of Technology (MIT), Boston, MA, 1998-2001.

Research Assistant, Laboratory for Nuclear Science, Massachusetts Institute of Technology (MIT), Boston, MA, 1997 - 1998.

Research Intern, Advanced Analysis Facility, University of Wisconsin, Milwaukee, WI, Jun 1997.

Research Participation, Physics Department, University of Wisconsin, Milwaukee, WI, 1996 - 1997.

Research Participation, Chemistry Department, Macalester College, St. Paul, MN, 1993 - 1994.

**Teaching/
Education/
Outreach**

Undergraduate Astronomy senior honors thesis participation, Dept. of Physics & Astronomy, Michigan State University, MI, 2009-2010

Graduate Astronomy 2nd Year Research Project participation, Dept. of Physics & Astronomy, Michigan State University, MI, 2008-2009

NASA Center for Astronomy Education Workshop attendant, American Astronomical Society 211th Meeting, Austin, TX, January 6-7 2008

Instructor, ASTR348: Introduction to Cosmology, Department of Astronomy, University of Virginia, Charlottesville, VA, Summer 2007

Tutor for Student Athletes, University of Virginia, Charlottesville, VA, 2007

Lecturer at public open houses, McCormick Observatory, University of Virginia, Charlottesville, VA, 2005-2007.

Substitute instructor for graduate High Energy Astronomy course, Dept. of Astronomy, University of Virginia, Charlottesville, VA, Fall 2006

Undergraduate Astronomy senior honors thesis participation, Department of Astronomy, University of Virginia, Charlottesville, VA, 2005-2006

Substitute instructor for undergraduate Astronomy majors' course, Department of Astronomy, University of Virginia, Charlottesville, VA, Fall 2005

Undergraduate Astronomy research project advisor, Department of Astrophysical and Planetary Science, University of Colorado (CU), Boulder, CO, 2005.

Quantum Mechanics instructor for GRE review classes, Department of Astrophysical and Planetary Science, CU, Boulder, CO, 2003.

Undergraduate Physics senior honors thesis co-advisor, Department of Astrophysical and Planetary Science, CU, Boulder, CO, 2003-2005.

Public open house volunteer, Sommers Bausch Observatory, University of Colorado, Boulder, CO, 2001-2003.

Recitation instructor, Physics Department, University of Wisconsin, Milwaukee, WI, 1997.

Presentations/ Conferences University of Notre Dame, invited colloquium, November 2011

Albion College, invited seminar, April 2011

NASA Goddard Space Flight Center, invited colloquium, March 2011

11th Meeting of the High Energy Astrophysics Division (HEAD) of the AAS, oral presentation, Waikoloa, Hawaii, March 1-4, 2010

The Monster's Fiery Breath: Feedback in galaxies, groups, and clusters, oral presentation, Madison, Wisconsin, June 1-5, 2009

University of Michigan, invited talk, November 2008

Michigan State University, invited astronomy colloquium, September 2008

University of Virginia, invited astronomy colloquium, April 2008

University of Pittsburgh, invited physics colloquium, January 2008

University of Pittsburgh, invited astronomy lunch talk, January 2008

211th Meeting of the American Astronomical Society (AAS), poster presentation
Austin, Texas, January 7-11, 2008

Boston University, invited astronomy colloquium, November 2007

X-ray Surveys: Evolution of Accretion, Star-formation and Large Scale
Structure, oral presentation, Rodos Island, Greece, July 2-6, 2007

Macalester College, invited physics colloquium, February 2007

26th General Assembly of the International Astronomical Union (IAU), poster
presentation, Prague, Czech Republic, August 14-25, 2006.

University of Wisconsin-Madison, astronomy lunch talk, Fall 2005

205th Meeting of the American Astronomical Society (AAS), oral presentation
(thesis talk), San Diego, California, January 9-13, 2005.

35th COSPAR Scientific Assembly, Session E.1.2 - Clusters of Galaxies:
New Insights from XMM-Newton, *Chandra*, and INTEGRAL, oral
presentation, Paris, France, July 18-25, 2004.

204th Meeting of the American Astronomical Society (AAS), oral presentation,
Denver, Colorado, May 30 – June 4, 2004.

“Multiwavelength Cosmology”, poster presentation, Mykonos, Greece,
June 17-20, 2003.

200th Meeting of the American Astronomical Society (AAS), poster
presentation, Albuquerque, New Mexico, June 2-6, 2002.

5th Meeting of the High Energy Astrophysics Division (HEAD) of the
AAS, poster presentation, Honolulu, Hawaii, November 6-10, 2000.

30th Saas Fee Advanced Course: “High-Energy Spectroscopic
Astrophysics”, Les Diablerets, Switzerland, April 3-8, 2000.

“Large Scale Structure in the X-ray Universe”, poster presentation,
Santorini, Greece, September 20-22, 1999.

**Accepted
Proposals**

- Chandra, CXC, Cycle 13 *Expanding the Frontiers with Chandra: Observations of the Most Massive $z > 0.6$ Cluster of Galaxies Known*, 2011, 150,000 seconds, \$53,416, PI.
- Suzaku, Cycle 6 *An Unbiased Sample: Constraining Redshift Evolution with Optically-selected Clusters of Galaxies*, 2011, 285,000 seconds, PI.
- Suzaku, Cycle 6 *Observing Distant Galaxy Clusters from the Spitzer SpARCS Survey with Suzaku*, 2011, 290,000 seconds, PI.
- XMM-Newton, Cycle 10 *Massive Galaxy Clusters at High-redshift from the Spitzer SpARCS Survey*, 2010, 55,000 seconds, PI.
- XMM-Newton, Cycle 10 *Constraining Cluster Evolution at $z > 1$ with the SpARCS/RCS Cluster Surveys*, 2010, 30,000 seconds, Co-I.
- NASA Astrophysics Data Program, NASA, *Virgo Clusters at Redshift 0.35*, 2010, \$35,419, Co-I.
- Suzaku, Cycle 5 *Deciphering Cluster Observables: Tracing the Baryons in Clusters of Galaxies*, 2010, 134,000 seconds, \$15,933, PI.
- Chandra, CXC, Cycle 11 *Massive Galaxy Clusters at High Redshift from the Spitzer SpARCS Survey*, 2009, 160,000 seconds, \$70,000, Co-I.
- Suzaku, Cycle 4 *Deciphering Cluster Observables: Tracing the Baryons in Clusters of Galaxies*, 2009, 68,000 seconds, \$15,978, PI.
- Chandra, CXC, Cycle 10 *Deciphering Cluster Observables: Tracing the Baryons in Clusters of Galaxies*, 2008, 144,000 seconds, \$88,653, PI.
- Suzaku, Cycle 3 *Cosmology with Clusters: Constraining Physical Differences Between X-ray and Optically Selected Samples at Moderate- z* , 2008, 297,000 seconds, \$18,235, PI.
- Spitzer, Cycle 5, 2008, *Activity in a $z \sim 1$ Supercluster*, 2008, 9.9 hrs, \$18,000, Co-I.
- Suzaku, Cycle 2 *A Suzaku Snapshot Survey of High-redshift Galaxy Clusters from the RCS Survey*, 2007, 33,000 seconds, \$19,667, PI.
- GALEX, Cycle 3 *Measuring Star Formation Rates in Clusters of Galaxies With GALEX*, 2006, 46,500 seconds, 31 orbits, \$83,999, PI.

Chandra, CXC, Cycle 8 *Solving the Cooling Flow Mystery: Understanding Variations in Star Formation Efficiency Using the Chandra Archive*, 2006, archival proposal, \$65,000, PI.

Chandra, CXC, Cycle 8 *The Halo Structure of RCS2-2327.4-0204*, 2006, 25,000 seconds, \$22,999, Co-I.

Hubble Space Telescope, Cycle 15 *The Halo Structure of RCS2-2327.4-0204*, 2006, 22 orbits, \$77,653, Co-I.

XMM-Newton, ESA, Cycle 5 *Diagnostics and Effects of the Outburst in Hercules-A*, 2005, 100,000 seconds, \$46,419, Co-I.

XMM-Newton, ESA, Cycle 5 *Mass Constraints on High Redshift Clusters of Galaxies with XMM-Newton*, 2005, 15,000 seconds, \$55,418, PI.

Suzaku, Cycle 1 *Nailing Down the Hard X-ray Inverse Compton Emission from the Radio Halo in the Coma Cluster*, 2005, 180,000 seconds, \$51,401, Co-I.

Suzaku, Cycle 1 *Hard X-ray Inverse Compton Emission and a Merger Shock Associated with the Brightest Known Radio Relic in Abell 3667*, 2005, 135,000 seconds, \$42,560, Co-I.

**Committees/
Service** **Peer Reviewer for *The Astrophysical Journal***, Spring 2011.

Chandra Cycle 10 Peer Review (Time Allocation Committee), Boston, MA, June 2008.

Peer Reviewer for *The Astrophysical Journal*, Fall 2006.

Concerns Committee, Department of Astrophysical and Planetary Science, University of Colorado, Boulder, CO, Academic Year (AY) 2004 - 2005.

Faculty Search Committee, Department of Astrophysical and Planetary Science (APS), University of Colorado, Boulder, CO, Spring 2004.

Admissions Committee, Department of Astrophysical and Planetary Science, University of Colorado, Boulder, CO, Spring 2003.

Faculty Search Committee, Department of Astrophysical and Planetary Science, University of Colorado, Boulder, CO, Spring 2003.

Faculty Meeting Student Representative, Department of Astrophysical and Planetary Science, University of Colorado, Boulder, CO, 2002 – 2004.

**Professional
Societies**

Member, International Astronomical Union (IAU), 2009 -

Member, High Energy Astrophysics Division (HEAD) of the AAS, 2007 –

Associate member, Committee on Space Research (COSPAR), 2005 -

Member, American Astronomical Society (AAS), 2005 –

Junior Member, American Astronomical Society, 2002 – 2005.

Publications

- “Submillimetre Source Counts in the Fields of High-redshift Galaxy Clusters”, Noble, A. G., Webb, T.M.A., Ellingson, E., Faloon, A.J., Gal, R.R., Gladders, M.D., **Hicks, A. K.**, Hoekstra, H., Hsieh, B.C., Ivison, R.J., Lemaux, B.C., Lubin, L.M., O’Donnell, D.V., Yee, H.K.C. (alphabetical), 2011, *Monthly Notices of the Royal Astronomical Society*, Accepted (astro-ph arXiv:1109.5125)
- “The $L_X - T_{\text{vir}}$ relation in galaxy clusters: effects of radiative cooling and AGN heating”, Mittal, R., **Hicks, A. K.**, Reiprich, T. H., Jaritz, V., 2011, *Astronomy & Astrophysics*, 532, 133
- “Detecting Star Formation in Brightest Cluster Galaxies with *GALEX*”, **Hicks, A. K.**, Mushotzky, R., & Donahue, M., 2010, *Astrophysical Journal*, 719, 1844
- “Star Formation and UV colors of the Brightest Cluster Galaxies in the Representative XMM-Newton Cluster Structure Survey” Donahue, M., Bruch, S., Wang, E., Voit, G.M., **Hicks, A. K.**, Haarsma, D.B., Croston, J., Pratt, G., Pierini, D., O’Connell, R.W. & Bohringer, H. 2010, *Astrophysical Journal*, 715, 881
- “Tracing Star Formation in Cool Core Clusters with *GALEX*”, **Hicks, A. K.**, Mushotzky, R., & Donahue, M., 2009, *American Institute of Physics Conference Series* (not refereed), 1201, 146
- “*Chandra* X-ray Observations of the $0.6 < z < 1.1$ Red-Sequence Cluster Survey Sample”, **Hicks, A. K.**, Ellingson, E., Bautz, M., Cain, B., Garmire, G., Gilbank, D., Gladders, M., Hoekstra, H., & Yee, H. K. C. 2008, *Astrophysical Journal*, 680, 1022
- “Evidence for Line-of-sight Structure in a Comparison of X-ray and Optical Observations of the High-redshift Cluster RCS043938-2904.7”, Cain, B., Gilbank, D., Bautz, M. W., **Hicks, A. K.**, Yee, H. K., Gladders, M., Ellingson, E., Barrientos, L. F., & Garmire, G.P., 2008, *Astrophysical Journal*, 679, 293
- “A $z=0.9$ Supercluster of X-Ray Luminous, Optically-Selected, Massive Galaxy Clusters”, Gilbank, D. G., Yee, H. K. C., Ellingson, E., **Hicks, A. K.**, Gladders, M. D., Barrientos, L. F., and Keeney, B., 2008, *Astrophysical Journal Letters*, 677, L89
- “A Multiwavelength Analysis of the Strong Lensing Cluster RCS0224334-0002.5 at $z=0.778$ ”, **Hicks, A. K.**, Ellingson, E., Hoekstra, H., Gladders, M., Yee, H. K. C., Bautz, M., Gilbank, D., Webb, T., & Ivison, R. 2007, *Astrophysical Journal*, 671, 1446
- “*Chandra* Observation of the Interaction of the Radio Source and Cooling Core in Abell 2063”, Kanov, K., Sarazin, C. & **Hicks, A. K.** 2006, *Astrophysical Journal*, 653, 184
- “Multiwavelength Mass Comparisons of the $z \sim 0.3$ CNOC Cluster Sample”, **Hicks, A. K.**, Ellingson, E., Hoekstra, H., & Yee, H. K. C. 2006, *Astrophysical Journal*, 652, 232

- “Star Formation Rates in Cooling Flow Clusters: A UV Pilot Study with Archival XMM Newton Optical Monitor Data”, **Hicks, A. K.**, & Mushotzky, R. 2005, *Astrophysical Journal Letters*, 635, L9
- “Multiwavelength Studies of Cluster Evolution from $z \sim 1$ to the Present”, **Hicks, A. K.** 2005, Doctoral Dissertation, University of Colorado-Boulder
- “Chandra X-ray Observations of Newly Discovered, $z \sim 1$ Clusters from the Red Sequence Cluster Survey”, **Hicks, A. K.**, Ellingson, E., Bautz, M. W., Yee, H. K. C., Gladders, M., & Garmire, G. 2004, *Advances in Space Research*, 36, 706
- “Unresolved X-ray Sources in Intermediate Redshift Cluster Fields”, Fawcett, S., Ellingson, E., & **Hicks, A. K.** 2004, *Bulletin American Astronomical Society* (not refereed), 36
- “First X-ray Results from the Optically Selected Red Sequence Cluster Survey (RCS) at $z \sim 1$ ”, **Hicks, A. K.**, Ellingson, E., Yee, H. K. C., Jeltema, T. E., Bautz, M. W., Gladders, M., & Garmire, G. 2004, in *Multiwavelength Cosmology* (not refereed), ed. M. Plionis, Kluwer Academic Publishers
- “Linear Gas Dynamics in the Expanding Universe”, Gnedin, N. Y., Baker, E. J., Bethell, T. J., Drosback, M. M., Harford, A. G., **Hicks, A. K.**, Jensen, A. G., Keeney, B. A., Kelso, C. M., Neyrinck, M. C., Pollock, S. E. & van Vliet, T. P. 2003, *Astrophysical Journal*, 583, 525
- “Chandra X-Ray Spectroscopy and Imaging of the Galaxy Cluster PKS 0745-191”, **Hicks, A. K.**, Wise, M. W., Houck, J. C., & Canizares, C. R. 2002, *Astrophysical Journal*, 580, 763
- “Chandra X-Ray Spectroscopy and Imaging of the Galaxy Cluster PKS 0745-191”, **Hicks, A. K.** 2001, Masters Thesis, Massachusetts Institute of Technology (MIT)
- “Effects of Departures from Ionization Equilibrium on Cooling Flow X-Ray Spectra”, **Hicks, A. K.**, & Canizares, C. R. 2001, *Astrophysical Journal*, 556, 468
- “Effects of Departures from Ionization Equilibrium on Cooling Flow X-ray Spectra”, **Hicks, A. K.**, & Canizares, C. R. 1999, in *Large Scale Structure in the X-Ray Universe* (not refereed), eds. M. Plionis, I Georgantopoulos, S. Basilakos, E. Kontizas, Kluwer Academic Publishers
- “The Effects of High Temperature Annealing on the Surface Reconstruction of Nickel Oxide (1.0)”, Schofield, M. A., **Hicks, A. K.**, & Gajdardziska-Josifovska, M. 1998, *Electron Microscopy 1998, Proc. 14th International Congress on Electron Microscopy*, Eds. H.A. Calderon Benavides and M.J. Yacaman, Institute of Physics Publishing, 3, 713

Submitted Papers and Current Projects

- “The Gemini Cluster Astrophysics Spectroscopic Survey (GCLASS): The Role of Environment and Self-regulation in Galaxy Evolution at $z\sim 1$ ”, Muzzin, A., Wilson, G., Yee, H., Balogh, M., Burke, D., DeGroot, A., Demarco, R., Ellingson, E., Gardner, J.P., Gilbank, D., Gladders, G., **Hicks, A. K.**, Hoekstra, H., Lacy, M., Majumdar, Noble, A., S., Rettura, A., Surace, J., Webb, T., Yan, R. (alphabetical), 2011, *Astrophysical Journal*, submitted
- “Tracing the Baryons in Clusters of Galaxies: A Multi-mission X-ray Study of Moderate- z Optically-selected Clusters”, **Hicks, A. K.**, Ellingson, E., Pratt, G., Donahue, M., Boehringer, H., Arnaud, M., Croston, J., Gladders, M., Hoekstra, H. & Yee, H.K.C. *Astrophysical Journal*, in draft for Fall 2011 submission
- “X-ray Observations of a Massive $z=0.87$ Galaxy-selected Cluster”, Ellingson, E., **Hicks, A. K.**, Burke, D., Demarco, R., Muzzin, A. & Wilson, G. *Astrophysical Journal*, in draft for Fall 2011 submission
- “Infrared and Ultraviolet Star Formation in Brightest Cluster Galaxies”, Hoffer, A.S., Donahue, M., **Hicks, A. K.** & Barthelemy, R.S. *Astrophysical Journal*, in draft for Fall 2011 submission
- “Observing Distant, Optically-selected Clusters of Galaxies with *Suzaku*”, **Hicks, A. K.**, Sarazin, C. L., Ellingson, E., Donahue, M., Gladders, M., & Yee, H.K.C. *Astrophysical Journal*, in prep
- “Multi-wavelength Observations of the Extremely Massive and High Redshift Cluster RCS2 2327-02”, Gladders, M., Hoekstra, H., Gilbank, D., **Hicks, A. K.**, Marrone, D., Barrientos, L. F., Bonamente, M., Carlstrom, J., Ellingson, E., Joy, M. & Yee, H.K.C. *Astrophysical Journal Letters*, in prep

References

Research

Dr. Claude R. Canizares

Title: Professor, Associate Provost
Address: MIT, Room 3-234
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Relationship: Graduate advisor

Dr. Erica Ellingson

Title: Professor
Address: CASA, Univerisity of Colorado
389 UCB
Boulder, CO 80309-0389
Phone: 303-492-6610
Email: Erica.Ellingson@colorado.edu
Relationship: Ph.D. advisor

Dr. Richard F. Mushotzky

Title: Professor
Address: Department of Astronomy
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Email: richard@milkyway.gsfc.nasa.gov
Relationship: GSRP fellowship scientific advisor

Dr. Craig L. Sarazin

Title: W. H. Vanderbilt Professor
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Dr. Megan Donahue

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Relationship: Postdoctoral employer/advisor

Teaching

Dr. Edward M. Murphy

Title: Associate Professor
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Relationship: Colleague

Dr. Robert T. Rood

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