Kenneth W. Cavagnolo
Curriculum Vitae

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Education

Michigan State University 2005 - 2008
Ph.D., Astronomy & Astrophysics
Dissertation: "Investigating Feedback and Relaxation in Clusters of Galaxies with the Chandra X-ray Observatory"
Advisor: Dr. Megan Donahue
GPA: 4.0/4.0

Michigan State University 2002 - 2005
M.S., Astrophysics, *Magna Cum Laude*
Thesis: "Entropy Profiles of Cooling Flow Clusters"
Advisor: Dr. Megan Donahue
GPA: 3.44/4.0

Georgia Institute of Technology 1998 - 2002
B.S., Physics, *Magna Cum Laude*
Senior Thesis: "Analysis of the Eclipsing Binary ET Tau"
Advisor: Dr. James Sowell
GPA: 3.55/4.0

Honors

- Referee for Astrophysical Journal, Astronomical Journal, & CanTAC 2008 - Present
- Sherwood K. Haynes Award for Outstanding Graduate Student 2008
- MSU College of Natural Science Dissertation Fellow 2007 - 2008
- American Astronomical Society Member 2002 - Present
- American Physical Society Member 2002 - Present
- Sigma Pi Sigma, National Physics Honor Society 2001 - Present
- Perimeter Institute Black Hole Reading Group 2009 - Present
- Dean's List, Georgia Tech 1998-2002

Research Interests

- Galaxy Clusters
- Galaxy Formation
- Star Formation in Massive Galaxies
- Black Hole Formation and Evolution
- Large Scale Structure and Cosmology

Research Experience

Postdoctoral Fellow 2008 - Present
Supervisor: Dr. Brian McNamara, *Univ. of Waterloo*

Investigating AGN feedback in giant ellipticals, content of AGN jets, and energy supply of SMBHs.

Supermassive Cluster Survey, Member 2007 - Present
Lead: Dr. Rachel Mandelbaum, *IoA*
Weak lensing collaboration to measure the scatter between X-ray observables and true projected mass.

Graduate Research Assistant 2003 - 2008
Supervisor: Dr. Megan Donahue, *Mich. St. Univ.*
Investigated feedback mechanisms, galaxy evolution, and the process of virialization in galaxy clusters.

Graduate Research Assistant 2002 - 2003
Supervisor: Dr. Jack Baldwin, *Mich. St. Univ.*
Analyzed echelle spectra for use in studies of *s*-process abundances in planetary nebulae.

Undergraduate Research Assistant 2000 - 2002
Supervisor: Dr. James Sowell, *Georgia Tech*
Obtained orbital solution for the eclipsing Algol binary ET Tau via UBV light curves and spectroscopic radial velocity curves.

Scientific Skills

- Profound skills in reducing and analyzing data taken with *Chandra* X-ray Observatory.
- Extensive experience customizing and debugging CIAO and CALDB.
- Familiarity with analysis packages: AIPS, CASA, IRAF, MOPEX, and PyRAF.
- Experience preparing radio observations with JObserve.
- Fluent in HTML, IDL, LaTeX, and PERL.
- Worked with C, FLASH, FORTRAN, MySQL, PYTHON, SuperMongo, and TCL.
- Mastery of multiple computing architectures: DOS, Linux, Macintosh, and Windows.
- Expert of computer troubleshooting, maintenance, and system construction.

Observing Experience

Giant Metrewave Radio Telescope (GMRT) 2010
Pune, India

Chandra X-ray Observatory (CXO) 2009
Boston, MA, USA

Very Large Array Radio Telescope (VLA) 2008
Socorro, NM, USA

Proposals & Grants

GMRT Cycle 17, Co-I 2009
The Power and Particle Content of Extragalactic Radio Sources

GMRT Cycle 17, Co-I 2009
The Morphology of the Steepest Spectrum Radio Sources in the Cores of Clusters of Galaxies - Echoes Of AGN Feedback?

GMRT Cycle 16, Co-I 2008
The Content of Giant Cavities in the IGM of Galaxy Clusters

Chandra Cycle 10, PI 2008
IRAS 09104+4109: An Extreme Brightest Cluster Galaxy

Chandra Cycle 10, Co-I 2008
Conduction and Multiphase Structure in the ICM

Spitzer Cycle 5, Co-I 2008
Star Formation and AGN Feedback in BCGs

Spitzer Cycle 5, Co-I 2008
Infrared Properties of a Control Sample of Brightest Cluster Galaxies

NSF Grant, Co-I 2008
Star Formation in the Univere's Largest Galaxies

Chandra Cycle 9, Co-I 2007
Quantifying Cluster Temperature Substructure

Public Outreach

Astronomers Without Borders (AWB) 2009-present
Organized the affiliate chapter of AWB at the University of Waterloo.

International Year of Astronomy (IYA) 2009
Helped with events in Waterloo for IYA such as observing nights, public talks, and workshops.

Teaching Experience

Substitute Instructor Fall 2006
Course: "Visions of the Universe"
Gave lectures covering stellar evolution, supernovae, white dwarves, neutron stars, and black holes.

Physics Tutor Summer 2003
Course: "Introductory Honors Physics I & II"
Tutored physics students taking introductory physics courses such as classical mechanics, optics, and electromagnetism.

Graduate Teaching Assistant 2002 - 2003
Course: "Visions of the Universe"
Directed and supervised laboratories for non-calculus based astronomy course.

References

DR. MEGAN DONAHUE
(517) 884-5618; donahue@pa.msu.edu
Tenured professor; Michigan State University

DR. BRIAN MCNAMARA
(519) 888-4567 ext. 38170; mcnamara@uwaterloo.ca
Tenured professor; University of Waterloo

DR. G. MARK VOIT
(517) 884-5619; voit@pa.msu.edu
Tenured professor; Michigan State University

DR. JACK BALDWIN
(517) 884-5611; baldwin@pa.msu.edu
Associate Chair for Astronomy; Michigan State University

DR. CHRIS CARILLI
(505) 835-7000; ccarilli@nrao.edu
National Radio Astronomy Observatory Chief Scientist

DR. MIKE WISE
+31 0 521 595 564; wise@science.uva.nl
LOFAR Radio Observatory Chief Scientist

DR. PAUL NULSEN
(617) 495-7043; pnulsen@cfa.harvard.edu
Research Scientist; Center for Astrophysics, Harvard University

Personal Interests

- Academic: Environmental sciences, “Cradle2Cradle” design, and urban planning.
- Athletics: Triathlons, baseball, rock climbing, and Georgia Tech athletics.
- Hobbies: Backpacking, reading, building model airplanes, and raising bonsai trees.