Resumé of Kenneth W. Cavagnolo

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Education

Michigan State University 2005 - Present
Ph.D. Astrophysics (expected end of August 2008)
Thesis Title: "Virialization, Entropy, and Feedback in Clusters of Galaxies"
Thesis Advisors: Dr. Megan Donahue & Dr. G. Mark Voit

Michigan State University 2002 - 2005
M.S. Astrophysics

Georgia Institute of Technology 1998 - 2002
B.S. Physics *Cum Laude*

Research Experience

Graduate Research Assistant 2003 - Present
Supervisor: Dr. Megan Donahue, *Mich. St. Univ.*
Studying clusters of galaxies via their X-ray properties to investigate feedback mechanisms, galaxy evolution, and the process of cluster virialization.

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

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

Research Interests

- Galaxy Cluster Evolution
- Galaxy Formation
- Feedback Mechanisms in Galaxy Clusters
- Large Scale Structure Formation and Cosmology

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.

Honors

- College of Natural Science Dissertation Fellow 2007 - Present
- American Astronomical Society Member 2002 - Present
- American Physical Society Member 2002 - Present
- Sigma Pi Sigma National Honor Society 2001 - Present
- NASA Center for Astronomy Education Participant 2007
- Dean's List, Georgia Tech 1998-2002

Scientific Skills

- Profound skills in reducing and analyzing data taken with *Chandra* X-ray Telescope.
- Extensive experience with customizing and debugging `CIAO` and `CALDB`.
- Familiarity with multiwavelength analysis packages: `AIPS`, `IRAF`, and `PyRAF`.
- Fluent in Perl, IDL, LaTeX and HTML.
- Working knowledge of Bash, C, csh, Flash, Fortran, MySQL, Supermongo, and Tcl.
- Mastery of multiple computing architectures: UNIX/Linux, Macintosh, and Windows.
- Expert of computer troubleshooting, maintenance, and system construction.

First Author Refereed Papers

"Feedback Mechanisms in Galaxy Clusters and Alteration of ICM Entropy"
Cavagnolo, Kenneth W.; Donahue, Megan; and Voit, G. Mark
2008, in prep. for ApJ

"Star Formation in BCGs: Resurrecting Conduction"
Cavagnolo, Kenneth W.; Donahue, Megan; and Voit, G. Mark
2008, in prep. for ApJ Letters

"Athenaeum of Galaxy Cluster Entropy Profiles"
Cavagnolo, Kenneth W.; Donahue, Megan; Voit, G. Mark; and Sun, Ming
2007, near ApJ Supplement submission

"X-ray Band Dependence of X-ray Temperatures in Galaxy Clusters"
Cavagnolo, Kenneth W.; Donahue, Megan; Voit, G. Mark; and Sun, Ming
2007, ApJ submitted

Other Refereed Papers

"Star Formation, Radio Sources, Cooling X-Ray Gas and Galaxy Interactions in the Brightest Cluster Galaxy in 2A0335+096"
Donahue, Megan; Sun, Ming; O'Dea, Christopher P.; Voit, G. Mark; **Cavagnolo, Kenneth W.**
2007AJ....134...14D

"Entropy Profiles in the Cores of Cooling Flow Clusters of Galaxies"
Donahue, Megan; Horner, Donald J.; **Cavagnolo, Kenneth W.**; Voit, G. Mark
2006ApJ...643..730D

"s-Process Abundances in Planetary Nebulae"
Sharpee, Brian; Zhang, Yong; Williams, Robert; Pellegrini, Eric; **Cavagnolo, Kenneth**; Baldwin, Jack A.; Phillips, Mark; Liu, Xiao-Wei
2007ApJ...659.1265S

Presented Work & Talks

"Library of Galaxy Cluster Entropy Profiles: A Study in Feedback"
Cavagnolo, Kenneth W.; Donahue, Megan; Voit, G. Mark; and Sun, Ming
2008 Winter Meeting of the American Astronomical Society, Poster

"Band Dependence of X-ray Temperatures"
2007 University of Michigan Astrophysics Seminar, Invited Talk

"The Entropy-Feedback Connection and Quantifying Cluster Virialization"
Cavagnolo, Kenneth W.; Donahue, Megan; Voit, G. Mark; and Sun, Ming
2007 Eight Years of Science with Chandra Symposium, Poster

"Chandra Studies of Dark Matter and Galaxy Formation: Signatures from the Intracluster Medium"
Donahue, Megan; Sun, M.; **Cavagnolo, K.**; Voit, G.
2006 Winter Meeting of the American Astronomical Society, Poster

"Abundances of s-process elements in planetary nebulae: Br, Kr & Xe"
Zhang, Y.; Williams, R.; Pellegrini, E.; **Cavagnolo, K.**; Baldwin, J. A.; Sharpee, B.; Phillips, M.; Liu, X.-W.
2006 IAU Symposium, Proceeding

"Studies of Entropy Distributions in X-ray Luminous Clusters of Galaxies"
Cavagnolo, K. W.; Donahue, M. E.; Voit, G. M.; Sun, M.; Evrard, A. E.
2005 Winter Meeting of the American Astronomical Society, Poster

"Entropy Distributions in the Cores of Nearby X-ray Luminous Clusters of Galaxies"
Cavagnolo, K. W.; Donahue, M. E.; Voit, G. M.; Horner, D. J.; Evrard, A. E.
2004 Winter Meeting of the American Astronomical Society, Poster

"Radio-Free Cluster Cooling Flows"
Donahue, M. E.; Voit, G. M.; **Cavagnolo, K.**
2004 Winter Meeting of the American Astronomical Society, Poster

References

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Dr. G. Mark Voit
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Dr. Jack Baldwin
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Personal Interests

- Academic: environmental sciences, "Cradle2Cradle" design, and urban planning.
- Athletics: triathlons, baseball, and everything Georgia Tech.
- Hobbies: reading, building model airplanes, and raising bonsai trees.