

## KENNETH W. CAVAGNOLO

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**Education**     **Michigan State University**     2005 - Present

Ph.D. Astrophysics, Expected May-August 2008  
 Thesis Title: "Feedback, Evolution, and Dynamics 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**     **Graduate Research Assistant**     2003 - Present

**Experience** 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  
 UVB light curves and spectroscopic radial velocity curves.

- Research**     • LARGE SCALE STRUCTURE FORMATION AND COSMOLOGY  
**Interests**   • GALAXY CLUSTER EVOLUTION  
                   • FEEDBACK MECHANISMS IN GALAXY CLUSTERS  
                   • SUNYAEV-ZEL'DOVICH EFFECT  
                   • GALAXY FORMATION

**Teaching**     **Substitute Instructor**     Fall 2006

**Experience** 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
- NASA Center for Astronomy Education Participant 2007
- Sigma Pi Sigma National Honor Society 2001 - Present
- 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 CIAO and CALDB.
- Familiarity with multiwavelength analysis packages: AIPS, IRAF, and PyRAF.
- Fluent in Perl, IDL, and HTML.
- Working knowledge of Bash, C, CSH, Flash, Fortran, MySQL, and Supermongo.
- Mastery of multiple computing architectures: UNIX/Linux, Windows, and Macintosh.
- 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; Voit, G. Mark; and Sun, Ming  
2008, in prep.

*"Library of Galaxy Cluster Entropy Profiles"*

**Cavagnolo, Kenneth W.**; Donahue, Megan; Voit, G. Mark; and Sun, Ming  
2007, in prep.

*"X-ray Band Dependence of X-ray Temperatures in Galaxy Clusters"*

**Cavagnolo, Kenneth W.**; Donahue, Megan; Voit, G. Mark; and Sun, Ming  
2007, near ApJ submission.

### 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, Thesis Talk and Poster

*"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 Intra-cluster 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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## 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.