

## RESUMÉ OF KENNETH W. CAVAGNOLO

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| <b>Education</b>           | <p><b>Michigan State University</b> 2005 - Present<br/>         Ph.D. Astrophysics, Expected May-August 2008<br/>         Thesis Title: "Virialization, Entropy, and Feedback in Clusters of Galaxies"<br/>         Thesis Advisors: Dr. Megan Donahue &amp; Dr. G. Mark Voit</p> <p><b>Michigan State University</b> 2002 - 2005<br/>         M.S. Astrophysics</p> <p><b>Georgia Institute of Technology</b> 1998 - 2002<br/>         B.S. Physics <i>Cum Laude</i></p>   |
| <b>Research Experience</b> | <p><b>Graduate Research Assistant</b> 2003 - Present<br/>         Supervisor: Dr. Megan Donahue, <i>Mich. St. Univ.</i><br/>         Studying clusters of galaxies via their X-ray properties to investigate feedback mechanisms, galaxy evolution, and the process of cluster virialization.</p> <p><b>Graduate Research Assistant</b> 2002 - 2003<br/>         Supervisor: Dr. Jack Baldwin, <i>Mich. St. Univ.</i><br/>         Analyzing echelle spectra for use in studies of <i>s</i>-process abundances in planetary nebulae.</p> <p><b>Undergraduate Research Assistant</b> 2000 - 2002<br/>         Supervisor: Dr. James Sowell, <i>Georgia Tech</i><br/>         Obtaining orbital solution for the eclipsing Algol binary ET Tau via UBV light curves and spectroscopic radial velocity curves.</p> |
| <b>Research Interests</b>  | <ul style="list-style-type: none"> <li>• GALAXY CLUSTER EVOLUTION</li> <li>• GALAXY FORMATION</li> <li>• FEEDBACK MECHANISMS IN GALAXY CLUSTERS</li> <li>• LARGE SCALE STRUCTURE FORMATION AND COSMOLOGY</li> </ul>   |
| <b>Teaching Experience</b> | <p><b>Substitute Instructor</b> Fall 2006<br/>         Course: "Visions of the Universe"<br/>         Gave lectures covering stellar evolution, supernovae, white dwarves, neutron stars, and black holes.</p> <p><b>Physics Tutor</b> Summer 2003<br/>         Course: "Introductory Honors Physics I &amp; II"</p>  |

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, L<sup>A</sup>T<sub>E</sub>X 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

“*X-ray and Entropy Scaling Relations in Galaxy Clusters*”

**Cavagnolo, Kenneth W.**; Donahue, Megan; and Voit, G. Mark

### Refereed

2008, in prep. for ApJ

### 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, near ApJ Letters submission

“*Athenaeum of Galaxy Cluster Entropy Profiles*”

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

2007, ApJ Supplement submitted

“*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

“*Star Formation, Radio Sources, Cooling X-Ray Gas and Galaxy Interactions in the Brightest Cluster Galaxy in 2A0335+096*”

### Papers

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**

*“Understanding Feedback in Galaxy Clusters”*

2008 Center for Study of Cosmic Evolution Seminar, Michigan State University, Invited  
 Talk

*“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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<b>Personal Interests</b>	<ul style="list-style-type: none"><li>- Academic: environmental sciences, “Cradle2Cradle” design, and urban planning.</li><li>- Athletics: triathlons, baseball, and everything Georgia Tech.</li><li>- Hobbies: reading, building model airplanes, and raising bonsai trees.</li></ul>
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