

## Dr. Kenneth W. Cavagnolo Curriculum Vitae

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<b>Education</b>	Michigan State University Ph.D., Astronomy & Astrophysics	2005 - 2008
	Michigan State University M.S., Astronomy & Astrophysics, <i>magna cum laude</i>	2002 - 2005
	Georgia Institute of Technology B.S., Physics, <i>magna cum laude</i>	1998 - 2002
<b>Research Experience</b>	Postdoctoral Fellow Supervisor: Brian McNamara, <i>Univ. of Waterloo</i>	2008 - Present
	Graduate Research Assistant Supervisor: Megan Donahue, <i>Mich. St. Univ.</i>	2003 - 2008
	Graduate Research Assistant Supervisor: Jack Baldwin, <i>Mich. St. Univ.</i>	2002 - 2003
	Undergraduate Research Assistant Supervisor: James Sowell, <i>Geor. Inst. of Tech.</i>	2000 - 2002
<b>Research Program &amp; Interests</b>	<p>My research program is focused on better understanding the connection between AGN and their host environments, with a specific interest in the role of AGN feedback on the formation and evolution of galaxies, galaxy groups, and galaxy clusters.</p> <p>Areas of interest:</p> <ul style="list-style-type: none"> <li>• Mechanical and radiative AGN feedback</li> <li>• Cosmic magnetic fields</li> <li>• Conditions for quasar-mode vs. radio-mode dominance</li> <li>• Black hole accretion mechanisms</li> <li>• Thermalization of AGN feedback energy</li> <li>• Formation of ICM thermal instabilities</li> <li>• Galaxy cluster radio halos</li> <li>• Cosmological studies via structure formation</li> </ul>	
<b>Honors</b>	• Referee for ApJ, ApJL, AJ, and CanTAC	2008 - Present
	• Sherwood K. Haynes Award for Outstanding Graduate Student	2008

- MSU College of Natural Science Dissertation Fellow 2007 - 2008
- ΣΞ National Scientific Research Society Member 2009 - Present
- ΣΠΣ National Physics Honor Society Member 2001 - Present
- American Astronomical Society Member 2002 - Present
- American Physical Society Member 2002 - Present
- Perimeter Institute Black Hole Reading Group Member 2009 - Present
- Dean's List, Georgia Inst. of Tech. 1998-2002

### Scientific Skills

- Extensive experience with X-ray and radio data analysis
- Familiarity with infrared, optical, and UV data analysis
- Understanding of AIPS, CASA, CIAO, IRAF, OSA, and SAS analysis software
- Fluent in HTML, IDL, L<sup>A</sup>T<sub>E</sub>X, and PERL programming languages
- Working knowledge of C, FORTRAN, MYSQL, PYTHON, SUPERMONGO, and TCL
- Mastery of DOS, Linux, Macintosh, and Windows computing architectures
- Expert of computer maintenance, system construction, and troubleshooting

### Observing Experience

- Giant Metrewave Radio Telescope (GMRT) Jan. 2010  
60 hours observing 15 galaxy clusters
- Chandra X-ray Observatory (CXO) Jan. 2009  
21 hour queued observation of IRAS 09104+4109
- Very Large Array Radio Telescope (VLA) Dec. 2008  
39 hours observing 13 giant ellipticals

### Accepted Proposals & Grants

- GMRT Cycle 17, Co-I 2009  
The Power and Particle Content of Extragalactic Radio Sources  
PI: Somak Raychaudhury, *Univ. Birmingham*
- GMRT Cycle 17, Co-I 2009  
The Morphology of Steepest Spectrum Radio Sources in Galaxy Cluster Cores  
PI: Alastair Edge, *Durham Univ.*
- NOAO Cycle 2008A & 2009A/B, Co-I 2008-2009  
Normalization and scatter of the  $M - T$  relation for supermassive galaxy clusters  
PI: Rachel Mandelbaum, *Princeton Univ.*
- GMRT Cycle 16, Co-I 2008  
The Content of Giant Cavities in the IGM of Galaxy Clusters  
PI: Somak Raychaudhury, *Univ. Birmingham*
- CXO Cycle 10, PI 2008  
IRAS 09104+4109: An Extreme Brightest Cluster Galaxy
- CXO Cycle 10, Co-I 2008  
Conduction and Multiphase Structure in the ICM  
PI: Mark Voit, *Mich. St. Univ.*

	Spitzer Cycle 5, Co-I Star Formation and AGN Feedback in BCGs PI: Megan Donahue, <i>Mich. St. Univ.</i>	2008
	Spitzer Cycle 5, Co-I Infrared Properties of a Control Sample of Brightest Cluster Galaxies PI: Megan Donahue, <i>Mich. St. Univ.</i>	2008
	NSF Grant, Co-I Star Formation in the Universe's Largest Galaxies PI: Mark Voit, <i>Mich. St. Univ.</i>	2008
	CXO Cycle 9, Co-I Quantifying Cluster Temperature Substructure PI: Mark Voit, <i>Mich. St. Univ.</i>	2007
	VLA A-configuration Cycle, Co-I Radio Feedback in Clusters and Galaxies PI: Brian McNamara, <i>Univ. Waterloo</i>	2007
<b>Students Advised</b>	Clif Kirkpatrick, Ph.D. candidate, <i>Univ. Waterloo</i> The 2-Dimensional metal abundance distributions in galaxy clusters	2008-present
	Mina Rohanizadegan, M.Sc. candidate, <i>Univ. Waterloo</i> Constraining the spin of SMBHs using measured AGN jet powers	2008-present
	Brad Whuiska, Undergraduate research, <i>Univ. Waterloo</i> Finding the largest galactic cores in the HST archive	2009-present
	Rob Myers, Undergraduate research, <i>Univ. Waterloo</i> In search of radio galaxies via X-ray and radio catalog cross-correlation	2009-present
<b>Teaching Experience</b>	Substitute Instructor Course: "Visions of the Universe"	Fall 2006
	Honors Physics Tutor Course: "Introductory Honors Physics I & II"	Summer 2003
	Graduate Teaching Assistant Course: "Visions of the Universe"	2002 - 2003
<b>References</b>	Megan Donahue, <a href="mailto:donahue@pa.msu.edu">donahue@pa.msu.edu</a> Tenured professor, Michigan State University	+00-1-517-884-5618
	Brian McNamara, <a href="mailto:mcnamara@uwaterloo.ca">mcnamara@uwaterloo.ca</a> Tenured professor, University of Waterloo	+00-1-519-888-4567 ext. 38170
	G. Mark Voit, <a href="mailto:voit@pa.msu.edu">voit@pa.msu.edu</a> Tenured professor, Michigan State University	+00-1-517-884-5619

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National Radio Astronomy Observatory Chief Scientist	
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Associate Chair for Astronomy, Michigan State University	
Paul Nulsen, <a href="mailto:pnulsen@cfa.harvard.edu">pnulsen@cfa.harvard.edu</a>	+00-1-617-495-7043
Research Scientist, Center for Astrophysics at Harvard University	
Mike Wise, <a href="mailto:wise@science.uva.nl">wise@science.uva.nl</a>	+31-0-521-595-564
LOFAR Radio Observatory Chief Scientist	

**Personal  
Interests**

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