Dr. Kenneth W. Cavagnolo
Curriculum Vitae

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Education	Michigan State University Ph.D., Astronomy & Astrophysics	2005 - 2008
	Michigan State University M.S., Astronomy & Astrophysics, *magna cum laude*	2002 - 2005
	Georgia Institute of Technology B.S., Physics, *magna cum laude*	1998 - 2002
Research Experience	Postdoctoral Fellow Supervisor: Brian McNamara, *Univ. of Waterloo*	2008 - Present
	Graduate Research Assistant Supervisor: Megan Donahue, *Mich. St. Univ.*	2003 - 2008
	Graduate Research Assistant Supervisor: Jack Baldwin, *Mich. St. Univ.*	2002 - 2003
	Undergraduate Research Assistant Supervisor: James Sowell, *Geor. Inst. of Tech.*	2000 - 2002

Research Program & Interests

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.

Areas of interest:
- Mechanical and radiative AGN feedback
- Cosmic magnetic fields
- Conditions for quasar-mode vs. radio-mode dominance
- Black hole accretion mechanisms
- Thermalization of AGN feedback energy
- Formation of ICM thermal instabilities
- Galaxy cluster radio halos
- Cosmological studies via structure formation

Honors

• 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, LaTeX, 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	2008
Star Formation and AGN Feedback in BCGs	
PI: Megan Donahue, *Mich. St. Univ.*	

	Spitzer Cycle 5, Co-I Infrared Properties of a Control Sample of Brightest Cluster Galaxies PI: Megan Donahue, *Mich. St. Univ.*	2008
	NSF Grant, Co-I Star Formation in the Universe's Largest Galaxies PI: Mark Voit, *Mich. St. Univ.*	2008
	CXO Cycle 9, Co-I Quantifying Cluster Temperature Substructure PI: Mark Voit, *Mich. St. Univ.*	2007
	VLA A-configuration Cycle, Co-I Radio Feedback in Clusters and Galaxies PI: Brian McNamara, *Univ. Waterloo*	2007
Students Advised	Clif Kirkpatrick, Ph.D. candidate, *Univ. Waterloo* The 2-Dimensional metal abundance distributions in galaxy clusters	2008-present
	Mina Rohanizadegan, M.Sc. candidate, *Univ. Waterloo* Constraining the spin of SMBHs using measured AGN jet powers	2008-present
	Brad Whuiska, Undergraduate research, *Univ. Waterloo* Finding the largest galactic cores in the HST archive	2009-present
	Rob Myers, Undergraduate research, *Univ. Waterloo* In search of radio galaxies via X-ray and radio catalog cross-correlation	2009-present
Teaching Experience	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
References	Megan Donahue, donahue@pa.msu.edu Tenured professor, Michigan State University	+00-1-517-884-5618
	Brian McNamara, mcnamara@uwaterloo.ca Tenured professor, University of Waterloo	+00-1-519-888-4567 ext. 38170
	G. Mark Voit, voit@pa.msu.edu Tenured professor, Michigan State University	+00-1-517-884-5619
	Chris Carilli, ccarilli@nrao.edu National Radio Astronomy Observatory Chief Scientist	+00-1-505-835-7000
	Jack Baldwin, baldwin@pa.msu.edu Associate Chair for Astronomy, Michigan State University	+00-1-517-884-5611

Paul Nulsen, pnulsen@cfa.harvard.edu   +00-1-617-495-7043
Research Scientist, Center for Astrophysics at Harvard University

Mike Wise, wise@science.uva.nl   +31-0-521-595-564
LOFAR Radio Observatory Chief Scientist

Personal • Academic: Environmental sciences, "Cradle2Cradle" design, and urban planning.
Interests • Athletics: Triathlons, running, baseball, and Georgia Tech athletics.
        • Hobbies: Backpacking, reading, building model airplanes, and raising bonsai trees.