

Dr. Kenneth W. Cavagnolo

Curriculum Vitae

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University of Waterloo
 Department of Physics & Astronomy
 200 University Avenue West
 Waterloo, Ontario, Canada N2L 3G1

517-285-9062
 519-888-4567 ext. 35074
kencavagnolo@gmail.com
www.pa.msu.edu/people/cavagnolo/

Education	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
Research Experience	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
Research Program & Interests	<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"> • 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
	• $\Sigma\Xi$ National Scientific Research Society Member	2009 - Present

	<ul style="list-style-type: none"> • ΣΠΣ National Physics Honor Society Member • American Astronomical Society Member • American Physical Society Member • Perimeter Institute Black Hole Reading Group Member • Dean's List, Georgia Inst. of Tech. 	2001 - Present 2002 - Present 2002 - Present 2009 - Present 1998-2002
Scientific Skills	<ul style="list-style-type: none"> • 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^AT_EX, 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) 60 hours observing 15 galaxy clusters	Jan. 2010
	Chandra X-ray Observatory (CXO) 21 hour queued observation of IRAS 09104+4109	Jan. 2009
	Very Large Array Radio Telescope (VLA) 39 hours observing 13 giant ellipticals	Dec. 2008
Accepted Proposals & Grants	GMRT Cycle 17, Co-I The Power and Particle Content of Extragalactic Radio Sources PI: Somak Raychaudhury, <i>Univ. Birmingham</i>	2009
	GMRT Cycle 17, Co-I The Morphology of Steepest Spectrum Radio Sources in Galaxy Cluster Cores PI: Alastair Edge, <i>Durham Univ.</i>	2009
	NOAO Cycle 2008A & 2009A/B, Co-I Normalization and scatter of the $M - T$ relation for supermassive galaxy clusters PI: Rachel Mandelbaum, <i>Princeton Univ.</i>	2008-2009
	GMRT Cycle 16, Co-I The Content of Giant Cavities in the IGM of Galaxy Clusters PI: Somak Raychaudhury, <i>Univ. Birmingham</i>	2008
	CXO Cycle 10, PI IRAS 09104+4109: An Extreme Brightest Cluster Galaxy	2008
	CXO Cycle 10, Co-I Conduction and Multiphase Structure in the ICM PI: Mark Voit, <i>Mich. St. Univ.</i>	2008
	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	2008
	Infrared Properties of a Control Sample of Brightest Cluster Galaxies PI: Megan Donahue, <i>Mich. St. Univ.</i>	
	NSF Grant, Co-I	2008
	Star Formation in the Universe's Largest Galaxies PI: Mark Voit, <i>Mich. St. Univ.</i>	
	CXO Cycle 9, Co-I	2007
	Quantifying Cluster Temperature Substructure PI: Mark Voit, <i>Mich. St. Univ.</i>	
	VLA A-configuration Cycle, Co-I	2007
	Radio Feedback in Clusters and Galaxies PI: Brian McNamara, <i>Univ. Waterloo</i>	
Students Advised	Clif Kirkpatrick, Ph.D. candidate, <i>Univ. Waterloo</i>	2008-present
	The 2-Dimensional metal abundance distributions in galaxy clusters	
	Mina Rohanizadegan, M.Sc. candidate, <i>Univ. Waterloo</i>	2008-present
	Constraining the spin of SMBHs using measured AGN jet powers	
	Brad Whuiska, Undergraduate research, <i>Univ. Waterloo</i>	2009-present
	Finding the largest galactic cores in the HST archive	
	Rob Myers, Undergraduate research, <i>Univ. Waterloo</i>	2009-present
	In search of radio galaxies via X-ray and radio catalog cross-correlation	
Teaching Experience	Substitute Instructor	Fall 2006
	Course: "Visions of the Universe"	
	Honors Physics Tutor	Summer 2003
	Course: "Introductory Honors Physics I & II"	
	Graduate Teaching Assistant	2002 - 2003
	Course: "Visions of the Universe"	
References	Megan Donahue, donahue@pa.msu.edu	+00-1-517-884-5618
	Tenured professor, Michigan State University	
	Brian McNamara, mcnamara@uwaterloo.ca	+00-1-519-888-4567 ext. 38170
	Tenured professor, University of Waterloo	
	Chris Carilli, ccarilli@nrao.edu	+00-1-505-835-7000
	National Radio Astronomy Observatory Chief Scientist	
	Mike Wise, wise@science.uva.nl	+31-0-521-595-564
	LOFAR Radio Observatory Chief Scientist	
	G. Mark Voit, voit@pa.msu.edu	+00-1-517-884-5619
	Tenured professor, Michigan State University	

**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.