Dr. Kenneth W. Cavagnolo
Curriculum Vitae

Last updated January 19, 2010; Hyperlinks colored blue

University of Waterloo
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Education

Michigan State University — 2005 - 2008
Doctor of Philosophy, Astronomy & Astrophysics

Michigan State University — 2002 - 2005
Master of Science, Astronomy & Astrophysics

Georgia Institute of Technology — 1998 - 2002
Bachelor of Science, Physics

Research Experience

Postdoctoral Fellow — 2008 - Present
Supervisor: Brian McNamara, *Univ. of Waterloo*

Graduate Research Assistant — 2003 - 2008
Supervisor: Megan Donahue, *Mich. St. Univ.*

Graduate Research Assistant — 2002 - 2003
Supervisor: Jack Baldwin, *Mich. St. Univ.*

Undergraduate Research Assistant — 2000 - 2002
Supervisor: James Sowell, *Geor. Inst. of Tech.*

Research Program & Interests

My research program is focused on better understanding the formation and evolution of cosmic structure via physical properties of the most massive gravitationally-bound objects (galaxy groups and clusters) and their sub-systems, *e.g.* galaxies, supermassive black holes, active galactic nuclei & jets, and thermal instabilities (*i.e.* gaseous nebulae, star formation, gas accretion).

Additional areas of interest:
- Intracluster medium magnetic fields
- Diffuse radio halos
- Mechanical and radiative AGN feedback
- 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 Tech	1998-2002

Scientific Skills

- Extensive experience with X-ray and low-frequency 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
- Worked with C, FLASH, 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) 56 hours observing 14 galaxy clusters at 325 MHz	Jan. 2010
Chandra X-ray Observatory (CXO) 21 hours 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, *Univ. Birmingham*	2009
GMRT Cycle 17, Co-I The Morphology of Steepest Spectrum Radio Sources in Galaxy Cluster Cores PI: Alastair Edge, *Durham Univ.*	2009
NOAO Cycle 2008A & 2009A/B, Co-I Normalization and scatter of the $M-T$ relation for supermassive galaxy clusters PI: Rachel Mandelbaum, *Princeton Univ.*	2008-2009
GMRT Cycle 16, Co-I The Content of Giant Cavities in the IGM of Galaxy Clusters PI: Somak Raychaudhury, *Univ. Birmingham*	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, *Mich. St. Univ.*	2008
Spitzer Cycle 5, Co-I Star Formation and AGN Feedback in BCGs PI: Megan Donahue, *Mich. St. Univ.*	2008

Spitzer Cycle 5, Co-I 2008
Infrared Properties of a Control Sample of Brightest Cluster Galaxies
PI: Megan Donahue, *Mich. St. Univ.*

NSF Grant, Co-I 2008
Star Formation in the Universe's Largest Galaxies
PI: Mark Voit, *Mich. St. Univ.*

CXO Cycle 9, Co-I 2007
Quantifying Cluster Temperature Substructure
PI: Mark Voit, *Mich. St. Univ.*

VLA A-configuration Cycle, Co-I 2007
Radio Feedback in Clusters and Galaxies
PI: Brian McNamara, *Univ. Waterloo*

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

G. Mark Voit, voit@pa.msu.edu +00-1-517-884-5619
Tenured professor, Michigan State University

Chris Carilli, ccarilli@nrao.edu +00-1-505-835-7000
National Radio Astronomy Observatory Chief Scientist

Jack Baldwin, baldwin@pa.msu.edu +00-1-517-884-5611
Associate Chair for Astronomy, Michigan State University

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 Interests

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