

Research Associate (Postdoc), University of Virginia Department of Astronomy

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## EDUCATION:

UNIVERSITY OF VIRGINIA, Charlottesville, VA

**Astronomy M.Sc. (2003), Ph.D. (2006)**

Aug. 2001 – Aug. 2006

UNIVERSITY OF MANCHESTER, Manchester, UK

**Radio Astronomy M.Sc.**

Sep. 2000 – Nov. 2001

BRANDEIS UNIVERSITY, Waltham, MA

**Physics B.Sc., Mathematics B.A.**

Sep. 1996 – May 2000

## FELLOWSHIPS AND AWARDS:

Outstanding Postdoc (UVa)

2009

DuPont Fellow (UVa)

Aug. 2005 – Aug. 2006

Raven Society (UVa)

2005

Virginia Space Grant Consortium Aerospace Graduate Fellow

Aug. 2004 – Aug. 2006

**Achievement Rewards for College Scientists Fellow**

Aug. 2003 – Aug. 2005

Presidents Fellow (UVa)

Aug. 2001 – Aug. 2004

**Fulbright Scholar (US/UK)**

Sep. 2000 – Aug. 2001

**Barry M. Goldwater Scholar**

Sep. 1999 – May 2000

Schiff Fellow (Brandeis)

Sep. 1999 – May 2000

University Scholar (Brandeis)

1998

Physics Faculty Prize (Brandeis)

2000

Stephen Berko Memorial Prize in Physics (Brandeis)

2000

Phi Beta Kappa (Junior)

1999

J. V. Cunningham Writing Award in Science (Brandeis)

1999

Justice Brandeis Scholar

Sep. 1996 – May 2000

**Robert C. Byrd Scholar**

1996

National Merit Scholar

1996

Eagle Scout

1994

## MISCELLANEOUS:

Have 31 papers in refereed journals (7 as the first author, 14 as the second/third author).

Publications cited about 591 times through 03/01/11 (about 213 times in 2010/2011).

H-indices: 13/11/7 (Any author/First–Third author/First author)

## ASTRONOMICAL RESEARCH:

UNIVERSITY OF VIRGINIA DEPARTMENT OF ASTRONOMY, Charlottesville, VA

### Research Associate (Postdoc)

Sep. 2008 – present

- X-ray Content of Early-Type Galaxies: Concentrating on the origin of low-mass X-ray binaries, their variability, and connection to globular clusters.
- Galactic Compact Objects: Multi-wavelength studies of transient X-ray binaries, X-ray sources in Galactic globular clusters, and Gamma-ray detected pulsars.
- AGN in Galaxy Clusters: Characterizing AGN content with Chandra X-ray and MDM optical observations.
- Quasar Properties: Comparing properties (e.g., masses, Eddington ratios) for various subsamples in the SDSS quasar catalogs.

THE OHIO STATE UNIVERSITY DEPARTMENT OF ASTRONOMY, Columbus, OH

### Postdoctoral Researcher

Sep. 2006 – Sep. 2008

- AGN in Galaxy Clusters: Characterizing AGN content with Chandra observations.
- X-ray Content of Early-Type Galaxies: Concentrating on the origin of low-mass X-ray binaries, their variability, and connection to globular clusters.
- Broad Absorption Line Quasars: Multiple wavelength comparison of broad absorption line detection using SDSS/2MASS/FIRST.

UNIVERSITY OF VIRGINIA DEPARTMENT OF ASTRONOMY, Charlottesville, VA

### Fellowship Supported Graduate Student

Aug. 2001 – Aug. 2006

- Chandra Observations of Early-Type Galaxies: Examined the point source population, predominantly low mass X-ray binaries, and diffuse gas, concentrating on luminosity functions, spectral properties, variability, and spatial profiles. Compared low mass X-ray binary and globular cluster populations.
- Galaxy Distribution in 2MASS: Examined gravitational quasi-equilibrium distribution and distribution near X-ray selected clusters.

UNIVERSITY OF MANCHESTER, Manchester, UK

### Fulbright Scholar

Sep. 2000 – Aug. 2001

- VLA & MERLIN Observations of the Quasar 0800+608: Examined unpolarized morphology, spectral behavior, fractional polarization, Faraday rotation, and 3-D hydrodynamic simulations to study atypical morphology.

MIT HAYSTACK OBSERVATORY, Westford, MA

### NSF Research Experience for Undergraduates Intern

Jun. 1999 – Aug. 1999

- Very Long Baseline Array Observation of R Cassiopeia: Calibrated, imaged, and analyzed first 3mm observation of this star.

BRANDEIS UNIVERSITY PHYSICS DEPARTMENT, Waltham, MA

### Research Assistant

Jan. 1998 - May 2000

- Relativistic AGN Jets: Analysis of dual frequency polarization VLBA observations of 12 AGN. Developed C++ computer simulation of Blandford-Königl model for inhomogeneous relativistic jets.

**GRANTS & ALLOCATED OBSERVING TIME:**

<b>Co-I</b> “A candidate ”intermediate-mass” black hole in the dwarf starburst galaxy He 2-10” NASA-GSFC, XMM-Newton Cycle 5: 28,000 seconds (A) on XMM	<b>TBD</b> Funds not yet allocated
<b>Co-I</b> “BAT Triggered Target of Opportunity Observations with Swift” NASA, Swift Cycle 7: 150,000 seconds on Swift	<b>\$40,000</b> Funds not yet allocated
<b>Co-I</b> “Following a black hole candidate X-ray transient to quiescence” NASA, Chandra Cycle 12: 187,000 seconds on Chandra	<b>TBD</b> Funds not yet allocated
<b>Co-I</b> “A Deep Chandra Study of NGC 4472 - Gas Dynamics in the Nearest Group-Cluster Merger” NASA, Chandra Cycle 12: 300,000 seconds on Chandra	<b>TBD</b> Funds not yet allocated
<b>Co-I</b> “An X-ray/Radio Test for an Intermediate-Mass Black Hole in M31’s G1 Cluster” NASA, Chandra Cycle 12: 35,000 seconds on Chandra; 9.75 hours on EVLA	<b>TBD</b> Funds not yet allocated
<b>Co-I</b> “Insights into Jet Emission Mechanism from Multi-Wavelength Observations of LMXBs” NASA, RXTE Cycle 15: 600,000 seconds on RXTE	<b>\$0</b> Jan. 2011 - Sep. 2011
<b>Co-I</b> “RXTE Observations of Globular Cluster X-ray Transients” NASA, RXTE Cycle 15: 240,000 seconds on RXTE	<b>\$0</b> Jan. 2011 - Sep. 2011
<b>Co-I</b> “Catching Aql X-1 Spectral Transitions with RXTE observations” NASA, RXTE Cycle 15: 150,000 seconds on RXTE	<b>\$0</b> Jan. 2011 - Sep. 2011
<b>SCIENCE PI</b> “The Ultimate VLBA Calibrator Search for Galactic Black Hole X-ray Binaries” NRAO, 2010C: 24 hours on VLBA	<b>\$0</b> Sep. 2010 - Sep. 2011

**GRANTS & ALLOCATED OBSERVING TIME:** (continued)

<b>Co-I</b>	<b>\$0</b>
“Constraining black hole formation with triggered VLBA astrometry”	Sep. 2010 - Sep. 2011
NRAO, 2010B: 48 hours on VLBA	
<b>Co-I</b>	<b>\$0</b>
“Astrometry of Aql X-1 and the luminosity of Type I X-ray bursts”	Jun. 2010 - May 2015
NRAO, 2010B: 112 hours on VLBA	
<b>Co-I</b>	<b>\$0</b>
“Probing Jet Acceleration and Collimation in Stellar-Mass Compact Objects”	Jun. 2010 - Dec. 2011
NRAO, 2010B: 168 hours on VLBA; 55 hours on VLA	
<b>SCIENCE PI</b>	<b>\$34,610</b>
“Constraining the Distance & Temperature of LAT PSR J1742-20, The Newly Discovered Nearby Middle-Aged Neutron Star”	May 2010 - May 2012
NASA, Chandra Cycle 11: 50,000 seconds on Chandra	
<b>PI</b>	<b>\$0</b>
“Near-Infrared Monitoring of the November 2009 Outburst of SS Cygni”	Apr. 2010
PAIRITEL: 30 daily epochs, each 5 minutes	
<b>SCIENCE PI</b>	<b>\$34,700</b>
“Addressing the Science Education of Elementary School Students in Rural Albemarle County”	Apr. 2010 - Apr. 2012
NASA, Chandra E/PO Cycle 11: E/PO	
<b>SCIENCE PI</b>	<b>\$13,775</b>
“Addressing the Nature of Science Through a Telescope Loaner Program for Teachers”	Apr. 2010 - Apr. 2012
NASA, Chandra E/PO Cycle 11: E/PO	
<b>SCIENCE PI</b>	<b>\$55,428</b>
“Binary Formation in the Sparse Galactic Globular Cluster NGC 3201”	Mar. 2010 - Mar. 2012
NASA, Chandra Cycle 11: 85,000 seconds on Chandra	
<b>SCIENCE PI</b>	<b>\$8,972</b>
“Binary Formation in the Sparse Galactic Globular Cluster NGC 3201”	Mar. 2010 - May 2012
NASA, Hubble Cycle 17: HST-GO-12012: 1 orbit on Hubble	

**GRANTS & ALLOCATED OBSERVING TIME:** (continued)

<b>Co-I</b> “Probing The Globular Cluster / Low Mass X-ray Binary Connection in Early-type Galaxies At Low X-ray Luminosities” NASA, Hubble Cycle 17: HST-GO-11679: 6 orbits on Hubble	<b>\$39,936</b> Feb. 2010 - Feb. 2012
<b>Co-I</b> “Identifying the Outbursting X-Ray Binary in NGC 6440, & Measuring Its Radio Flux” NRAO, 2010 ToO: 2 hours on VLA	<b>\$0</b> Dec. 2009
<b>PI</b> “Near-Infrared Monitoring of the November 2009 Outburst of Aquila X-1” PAIRITEL: 20 daily epochs, each 15 minutes	<b>\$0</b> Nov. 2009
<b>Co-I</b> “Probing Jet Acceleration and Collimation in Stellar-Mass Compact Objects” NRAO, 2009A: 274 hours on VLBA; 65.5 hours on VLA	<b>\$0</b> Jun. 2009 - Dec. 2010
<b>PI</b> “Spectroscopic Confirmation of Galaxy Cluster Candidate Behind Virgo” APO, 2009-Q2: Two half-nights on Apache Point Observatory 3.5m	<b>\$0</b> Apr. 2009 - Jun. 2009
<b>SCIENCE PI</b> “Binary Formation in the Sparse Galactic Globular Cluster NGC 3201” NRAO, 2009C: 1 hour on Green Bank Telescope	<b>\$0</b> Jan. 2009 - Dec. 2009
<b>Co-I</b> “The Distribution of AGN in Clusters of Galaxies” NASA, Chandra Cycle 9: Archive	<b>\$70,000</b> Oct. 2007 - Oct. 2009
<b>SCIENCE PI</b> “Deep Chandra and Hubble Observations of NGC 1023: Testing the Origin of Low-Mass X-Ray Binaries in a Lenticular Galaxy” NASA, Chandra Cycle 8: 192,000 seconds on Chandra; 8 orbits on Hubble (8 lost due to ACS failure)	<b>\$73,444</b> Apr. 2007 - Apr. 2009
<b>Co-I</b> “Jets, Bubbles, Binaries, and Hot Gas: A Deep Observation of Centaurus A” NASA, Chandra Cycle 8: 600,000 seconds on Chandra	<b>\$220,000</b> Mar. 2007 - Mar. 2009

**GRANTS & ALLOCATED OBSERVING TIME:** (continued)

<b>SCIENCE PI</b> “Probing The Globular Cluster / Low Mass X-ray Binary Connection in Early-type Galaxies At Low X-ray Luminosities” NASA, Hubble Cycle 15: HST-GO-10835: 10 orbits on Hubble (6 lost due to ACS failure)	<b>\$39,957</b> Jan. 2007 - Jan. 2009
<b>Co-I</b> “Development of a Model Teacher/Student Workshop Program for Ohio Middle Schools” NASA, Chandra E/PO Cycle 8: E/PO	<b>\$49,981</b> Jan. 2007 - Jan. 2009
<b>Co-I</b> “Understanding Gas Interactions in Groups: NGC 1600” NASA-GSFC, XMM-Newton Cycle 5: NNX06AE78G: 85,300 seconds (B) on XMM	<b>\$64,366</b> Aug. 2006 - Aug. 2007
<b>SCIENCE PI</b> “Probing the Galaxy-wide Globular Cluster - Low Mass X-ray Binary Connection in Early-type Galaxies” NASA, Hubble Cycle 14: HST-GO-10582: 12 orbits on Hubble	<b>\$47,946</b> Dec. 2005 - Dec. 2007
<b>Co-I</b> “Resolving the Connection Between Globular Clusters and Low-Mass X-ray Binaries” NASA, Hubble Cycle 14: HST-GO-10597: 9 orbits on Hubble	<b>\$10,292</b> Nov. 2005 - Nov. 2007
<b>SCIENCE PI</b> “Stellar Evolution Planetarium Show at the Science Museum of Virginia” NASA, Chandra E/PO Cycle 6: E/PO GO5-6086X	<b>\$25,896</b> Jan. 2005 - Aug. 2006
<b>SCIENCE PI</b> “Low Mass X-ray Binaries and Globular Clusters in the Early-Type Galaxy NGC 4365” NASA, Chandra Cycle 6: GO5-6086X: 160,000 seconds on Chandra	<b>\$71,179</b> Jan. 2005 - Aug. 2006
<b>SCIENCE PI</b> “Using the Chandra Archive To Study Low Mass X-ray Binaries and Globular Clusters in Virgo and Non-Virgo Early-Type Galaxies” NASA, Chandra Cycle 5: AR4-5008X	<b>\$30,520</b> Jan. 2004 - Jan. 2005
<b>OBSERVING Co-I</b> “Deep Chandra and Hubble Observations NGC 4697, the Nearest Optically Luminous, X-ray Faint Elliptical Galaxy” NASA, Chandra Cycle 5: GO4-5093X: 160,000 on Chandra	<b>\$74,399</b> Jan. 2004 - Jan. 2005

**OBSERVING CO-I****\$8,959**

“Deep Chandra and Hubble Observations NGC 4697, the Near-  
est Optically Luminous, X-ray Faint Elliptical Galaxy”

Feb. 2004 - Jan. 2006

NASA, Hubble Cycle 12: HST-GO-10003: 1 orbit on Hubble

**TEACHING:**

UNIVERSITY OF VIRGINIA DEPARTMENT OF ASTRONOMY, Charlottesville, VA

**Substitute Lecturer**

Apr. 2010

- Prepared & presented lectures on Solar System Origin and Exoplanets for introductive astronomy class.

UNIVERSITY OF VIRGINIA DEPARTMENT OF ASTRONOMY, Charlottesville, VA

**Theses Co-advisor**

Jan. 2009 - May 2009

- Co-advised (with Craig Sarazin) two senior theses on X-ray Binaries in Lenticular Galaxies.

UNIVERSITY OF VIRGINIA DEPARTMENT OF ASTRONOMY, Charlottesville, VA

**Invited Lecturer**

Apr. 2009, Jan. 2010

- Prepared & presented lecture on X-ray Binary research and astronomical careers for undergraduate major's seminar.

UNIVERSITY OF VIRGINIA DEPARTMENT OF ASTRONOMY, Charlottesville, VA

**Substitute Lecturer**

Oct. 2008

- Prepared & presented lecture on Supernova Blast Waves for graduate astronomy class.

UNIVERSITY OF VIRGINIA DEPARTMENT OF ASTRONOMY, Charlottesville, VA

**Substitute Lecturer**

Apr. 2006

- Prepared & presented lecture on Sun for introductory astronomy class.

BRANDEIS UNIVERSITY PHYSICS DEPARTMENT, Waltham, MA

**Teaching Assistant for Introduction to Astronomy**

Jan. 2000 - May 2000

- Led observatory sessions: Telescope lectures, naked eye observing, & telescope (manual pointing 24" Cassegrain reflector) observing.
- Reviewed class material with students during office hours.
- Webmaster: Updated old site, added math tutorials, & moderated bulletin board.

BRANDEIS UNIVERSITY TUTORIAL SERVICES, Waltham, MA

**Physics Peer Tutor**

Oct. 1998 - May 1999

- Tutored introductory physics students in Mechanics & Electromagnetism.

## RECENT ORAL PRESENTATIONS:

2010

- Lunch Talk, University of North Carolina, Chapel Hill, NC
- Physics Colloquium, James Madison University, Harrisonburg, VA
- Contributed Talk, High Energy View of Accreting Objects: AGN and X-ray Binaries: Agios Nikolaos, Greece
- Contributed Talk, Accretion Processes in X-Rays: From White Dwarfs to Quasars, Cambridge, MA
- Contributed Talk, High Energy Astrophysics Division of AAS Meeting, Waikoloa, HI
- Physics Colloquium, University of Alberta, Edmonton, AB
- Contributed Talk, The Wide Field X-ray Telescope Team Meeting, Baltimore, MD

2009

- Lunch Talk, Naval Research Laboratory, Washington, DC
- Cosmology Seminar, Max Planck Institute for Astrophysics, Garching, Germany
- Public Talk for Public-Night, UVa, Charlottesville, VA
- Contributed Talk, The Many Faces of Centaurus A, Sydney, Australia

2008

- Public Talk for Osher Lifetime Learning Institute, UVa, Charlottesville, VA
- Physics & Astronomy Colloquium, University of Louisville, Louisville, KY
- Press Release, The Black Hole Briefing at the 211th AAS meeting, Austin, TX

2007

- Contributed Talk, A Population Explosion: The Nature & Evolution of X-ray Binaries in Diverse Environments, St. Pete Beach, FL
- Contributed Talk, Eight Years of Science with Chandra, Huntsville, AL
- Lunch Talk, National Radio Astronomy Observatory, Charlottesville, VA
- Physics & Astronomy Seminar, Denison University, Granville, OH
- Astrophysics Seminar, Ohio University, Athens, OH
- HEAD Lunch Talk, Harvard Center For Astrophysics, Cambridge, MA
- Lunch Talk, University of Michigan, Ann Arbor, MI
- Lunch Talk, Michigan State University, East Lansing, MI
- Astronomy and Astrophysics Seminar, Northwestern University, Evanston, IL
- Galaxies Lunch Talk, University of Wisconsin, Madison, WI

2006

- Astronomy Colloquium, The Ohio State University, Columbus, OH
- PhD Defense, UVa, Charlottesville, VA
- Virginia Space Grant Consortium Student Research Conference, Newport News, VA
- AAS 207, Dissertation Talk, Washington, DC
- UVa Research Symposium, Charlottesville, VA

**COMMITTEES:**

UVA ASTRONOMY DEPARTMENT Member, Colloquium Committee	2004 - 2006
UVA ASTRONOMY DEPARTMENT Member, Computer Users Committee	2004 - 2005
UVA Member, Graduate Student Council	2003 - 2004
UVA ASTRONOMY DEPARTMENT Member, Public Outreach Committee	2002 - 2004

**OUTREACH ACTIVITIES:**

UVa Public Outreach Committee (2002 - 2004) • Telescope Operator for UVa McCormick Observatory Public Nights • Tour Guide for UVa Fan Mountain Observatory Public Nights • Support for UVa Public Outreach Special Events: Transit of Venus, Mars Mania, Leonid Meteor Showers, Osher Lifetime Learning Institute, & Aliens Film Festival • Online Participant in UVa Astronomy Question & Answers Outreach Program • Developed and led inquiry-based activities on the Sun for 1st graders at UVa McCormick Observatory • Developed and led inquiry-based activities on telescopes for 6th graders at Walton Middle School, Charlottesville, VA • Led inquiry-based activities on comets and star-charts for children at KidVentions 2006, Charlottesville, VA • Involved with development of exhibits for UVa McCormick Observatory, exhibits for traveling show for the Science Museum of Virginia, and planetarium shows for the Science Museum of Virginia • Primary investigator of a NASA Chandra X-ray Observatory Education/Public Outreach grant with Science Museum of Virginia • Co-investigator of a NASA Chandra X-ray Observatory Education/Public Outreach grant with COSI Science Museum • Faculty Presenter for UVa McCormick Observatory Public Nights • Volunteer for Dark Skies, Bright Kids, an after-school astronomy club for 8-10 year olds in rural Albemarle County, VA • Primary investigator of a NASA Chandra X-ray Observatory Education/Public Outreach grant with Dark Skies, Bright Kids • Primary investigator of a NASA Chandra X-ray Observatory Education/Public Outreach grant with the Chandra: Loaning UVa's Telescopes to Educators Program

**PROFESSIONAL SERVICE:**

Referee for *Astrophysical Journal* & *Monthly Notices of the Royal Astronomical Society* • Peer reviewer for NASA Chandra X-ray Observatory Time-Allocation Committee • Peer reviewer for *ICREA*, Catalan Institution for Research and Advanced Studies • Peer reviewer for Canada Hawaii France Telescope

**PROFESSIONAL SOCIETIES:**

American Astronomical Society • Canadian Astronomical Society • High Energy Astrophysics Division of AAS