

# Nicole Gugliucci

## Curriculum Vitae

Department of Astronomy  
University of Virginia  
Charlottesville, VA 22904-4325

neg9j@virginia.edu  
<http://www.astro.virginia.edu/~neg9j>

### Education

Ph.D Candidate	University of Virginia	Present
M.S. Astronomy	University of Virginia	May 2007
B.A. Physics	Lycoming College	May 2005

### Research Experience

#### **Exploring PAPER as a Wide-Field Imaging Instrument at 150 MHz**

PAPER (Precision Array for Probing the Epoch of Reionization) is undergoing testing at the NRAO (National Radio Astronomy Observatory) in Green Bank, WV. I will be working with Rich Bradley of the NRAO in Charlottesville, VA, to develop this array and test new imaging techniques for wide-field images at low frequencies. The full array will be placed in Western Australia to detect the elusive signal of the epoch of reionization. May 2006 – present.

#### **Using Extragalactic Water Masers to Measure the Hubble Constant**

As part of an NRAO Key Project to precisely measure the Hubble constant, I worked with Jim Braatz of the NRAO in Charlottesville, VA, to search all nearby, early-type galaxies for strong water disk masers with the GBT (Green Bank Telescope). We are following up on the detections from this survey with VLA (Very Large Array) and VLBA (Very Long Baseline Array) observations. August 2005 – present.

#### **Polarized Compact Symmetric Objects**

*NRAO Summer Student*

At the NRAO in Socorro, NM, I analyzed VLBA polarimetric observations of three compact, symmetric radio galaxies and 3C 84 with Greg Taylor. These were discovered during a survey of Compact Symmetric Objects (CSOs). June 2005 – August 2005.

#### **An Unbiased Search for Methanol Masers**

As part of a Departmental Honors Project at Lycoming College, I searched for water masers in W 49N and L1228 with the Haystack 37-m Telescope with Preethi Pratap of the Massachusetts Institute of Technology Haystack Observatory. Class I methanol masers were discovered in W 49N. September 2004 – April 2005.

## **The COINS Survey: Compact Symmetric Objects Observed in the Northern Sky**

*NRAO Summer Student*

With Greg Taylor, I investigated the proper motions and morphologies of Compact Symmetric Objects and discovered polarization in two CSOs with the VLBA. Also attended Ninth Synthesis Imaging Summer School. June 2004 – August 2004.

## **VLBI Polarimetry of a New Core Outburst in 3C 273**

*MIT Haystack Observatory Summer Student*

I undertook a project imaging 3C 273 at 43 and 86 GHz with Joanne Attridge and R.B. Phillips with VLBA polarimetry. June 2003 – August 2003.

## **Teaching Experience**

### **Teaching Assistant, University of Virginia**

August 2005 – May 2007

Responsibilities include proctoring observing labs, running constellation activities, grading, holding review sessions, and giving substitute lectures. Participated in public nights at Fan Mountain and McCormick Observatories and NRAO Open House.

### **Teaching Assistant, Lycoming College**

August 2001 – April 2005

Performed tutoring, proctoring, and grading services for various astronomy, physics, and math classes for eight semesters.

### **Student Academic Resource, Lycoming College**

August 2002 – May 2004

Worked for Residence Life and the Dean of Freshmen as a live-in, peer academic advisor for freshmen. Included counseling for students on academic probation.

## **Computer Experience**

Astronomy Packages: AIPS, Difmap, Miriad, GBTIDL, SCHED, JObserve

Other Software: LaTeX, OpenOffice, SuperMongo

Languages: IDL, HTML

Operating Systems: Mac OSX, Linux, Unix, Windows

## **Awards and Honors**

Virginia Space Grant Consortium Aerospace Graduate Research Fellowship, 2007 – 2008

Phi Kappa Phi Graduate Fellow, 2005 – 2006

Valedictorian, Summa Cum Laude, Departmental Honors, Lycoming College, May 2005

Q.E.D (Service) and  $\Phi\Upsilon\Upsilon\Upsilon\alpha$  (G.P.A.) Awards for Physics, Lycoming College, April 2005

Benjamin C. Connor Prize in Mathematics, Lycoming College, April 2005

Society of Physics Students Leadership Scholarship, 2004

Dean's List, Lycoming College, 2001 – 2005

Valedictorian Scholarship, Lycoming College, 2001 – 2005

## **Professional Memberships**

American Astronomical Society  
Phi Kappa Phi (Interdisciplinary Honor Society)  
Sigma Pi Sigma (Physics Honor Society)  
Kappa Mu Epsilon (Mathematics Honor Society)

## **Publications**

Gugliucci, N. E., Taylor, G. B., Peck, A. B., and Giroletti, M. 2007, *ApJ*, 661, 78.  
“Polarimetry of Compact Symmetric Objects.”

Gugliucci, Nicole. “Wilkinson Microwave Anisotropy Probe.” *USA in Space, 3<sup>rd</sup> ed.* Salem Press, 2006.

Taylor, G. B., Gugliucci, N. E., Fabian, A. C., Sanders, J. S., Gentile, G., and Allen, S. W. 2006, *MNRAS*, 368, 1500. “Magnetic fields in the centre of the Perseus cluster.”

Gugliucci, N. E., Taylor, G. B., Peck, A. B., and Giroletti, M. 2005, *ApJ*, 622, 136.  
“Dating COINS: Kinematic Ages for Compact Symmetric Objects.”

## **Presentations and Posters**

“PAPER: Precision Array to Probe the Epoch of Reionization.” Presented at the NRAO Summer Student Program in Charlottesville – August 2006

“Measuring the Distance Scale and Dark Energy with Extragalactic Water Masers.” Presented at the Lycoming College Astronomy and Physics Colloquium – March 2006

“Compact Symmetric Objects: The Smallest AGN.” Presented at the University of Virginia Astronomy Symposium – January 2006

“Polarimetry of Compact Symmetric Objects.” Gugliucci, N. E., Taylor, G. B., Peck, A. B., and Giroletti, M. Poster at 207<sup>th</sup> Meeting of the American Astronomical Society – January 2006

“Polarimetry of Compact Symmetric Objects: Revisiting the Youngest AGN.” Presented at the NRAO Summer Student Program in Socorro – August 2005

“An Unbiased Search for Class I Methanol Masers in Star Forming Regions.” Presented at the Lycoming College Astronomy and Physics Colloquium – April 2005

“Dating COINS: Kinematic Ages for Compact Symmetric Objects.” Gugliucci, N. E., Taylor, G. B., Peck, A. B., Giroletti, M. Poster at 205<sup>th</sup> Meeting of the American Astronomical Society – January 2005

“Identifying CSOs in the COINS Sample, and CSO Proper Motions and Ages.” Presented at the Lycoming College Astronomy and Physics Colloquium – September 2004. Also presented at the NRAO Summer Program in Socorro – August 2004

“Onward to the Red Planet.” Presentation with Dr. Richard Erickson at the Lycoming College Symposium on “Space: A Revolution in Perspective” – October 2003

“VLBI Polarimetry of a New Core Outburst in 3C 273 at 43 and 86 GHz.” Gugliucci, N. E., Attridge, J. M., and Phillips, R. B. Poster at the 203<sup>rd</sup> Meeting of the American Astronomical Society – January 2004

“Pushing VLBI Polarimetry to High Frequencies.” Presented at the Lycoming College Astronomy and Physics Colloquium – November 2003. Also presented at the MIT Haystack Observatory Summer Program – August 2003

“Mars Projekt: Planning a Manned Mission to Mars.” Presented at the Lycoming College Astronomy and Physics Colloquium – Spring 2003