

## Biographical Sketch

### Karen T. Lewis

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#### Education

1999 – present Graduate Student in Astronomy and Astrophysics  
The Pennsylvania State University  
1995 – 1999 University of Wisconsin, B.S. Physics (honors) and Mathematics

#### Awards and Distinctions

2002 – present NASA Graduate Researchers Program Fellow  
2002 TA of the Year Award (Department of Astronomy and Astrophysics)  
2000 – 2003 Pennsylvania Space Grant Consortium Fellowship  
2000 – 2002 Zaccheus Daniel Foundation for Astronomical Science, Travel Grants  
1999 – 2001 Braddock Fellowship, Eberly College of Science  
1995 – 2000 Wisconsin Space Grant Consortium Undergraduate Scholarship  
1995 – 1999 Wisconsin Academic Excellence Scholarship  
1995 – 1999 University of Wisconsin (UW) College of Letters & Sciences Honors program  
1996 – 1999 Phi Beta Kappa  
1999 Dean's Prize (UW, Letters and Sciences)  
1999 National Science Foundation Graduate Fellowship - Honorable Mention  
1998 Earl D. Johnson Scholarship (UW, Letters and Science)  
1997 Mark Ingraham Scholarship (UW, Mathematics Department)  
1997 Albert Augustus Radtke Scholarship (UW, Physics Department)  
1995 National Merit Scholar  
1995 National Science Scholars Program Scholarship

#### Experience

7/2002 – present NASA GSRP Fellow, Advisor: Michael Eracleous.  
“Unveiling the Accretion Disks that Fuel Active Galactic Nuclei”  
6/2001 – 1/2003 Research Assistant, Department of Astronomy & Astrophysics, Penn State  
& 9 – 12/2000 Advisor: Michael Eracleous. Using the optical emission lines of Weak-Line  
Radio Galaxies to constrain the properties of the accretion flow in these  
objects.  
1/2000 – 9/2002 Research Assistant, Department of Astronomy & Astrophysics, Penn State  
Advisor: David Burrows. Analysis of a *Chandra* observation of the  
young supernova remnant N103B. Assisted Dr. Joe Hill with irradiation  
testing of the post-flight ACIS CCDs on the *Chandra*.  
9/2001 – 5/2002 Teaching Assistant, Department of Astronomy & Astrophysics, Penn State  
& 9 – 12/1999 Taught an independent Astronomy Laboratory for non-majors. As part of this

- several new labs were developed to explore Kepler's Laws, the Inverse Square Law, Navigation, Stellar Evolution, and the search for Extra-Solar Planets.
- 1998 – 1999 Senior Thesis Project, Department of Physics, University of Wisconsin  
Advisor: Peter Timbie. Feasibility of Bolometric Interferometry. This involved designing, building and testing a two element microwave interferometer.
- 9/1999 – 5/1999 University of Wisconsin  
Math and Physics Tutor for the Women in Science and Engineering program
- 3/1999 – 1/1999 University of Wisconsin, Mathematics Department  
Tutor for the “Math Lab”, a drop-in tutoring service.
- 1/1997 – 8/1999 Student Hourly, University of Wisconsin, Physics Department  
Advisor: Peter Timbie. Projects involved designing and testing a vacuum window, manufacturing components of the cryogenic system as well as several smaller projects for the Medium Scale Anisotropy Measurement (MSAM), a balloon-borne detector used to study the Cosmic Microwave Background.
- 6/1996 – 9/1996 University of Wisconsin, Sophomore Summer Research Internship  
Advisor: Hakki Ogelman. Spectral and timing analysis of the neutron stars Geminga and Vela using archival Rosat and ASCA x-ray data.

### **Publications - Referred Journals**

- Lewis, K. T., Eracleous, M., Gliozzi, M, Sambruna, R. M. & Mushotzky, R. F., “A Simultaneous XMM/RXTE Observation of the the BLRG 3C 111”, *Ap. J.*, *submitted*
- Lewis, K. T., Eracleous, M. & Sambruna, R. M, “Emission Line Diagnostics of the Accretion Flow in Weak-Line Radio Galaxies”, *Ap. J.*, **593**, 115,2003
- Lewis, Karen T., Burrows, D. N., Nousek, J. A., Garmire, G. P., Slane, P., & Hughes, J. P. “The Radial Structure of SNR N103B”, *Ap. J.*, **582**, 770, 2003

### **Publications - Conference Proceedings**

- Eracleous, M, Lewis, K. T., Bogdonovic, T., Gezari, S. & Halpern, J. P. 2004 “Models and Ideas for the Interpretation of the Variability of Double-Peaked Emission Lines” in AGN Variability from X-rays to Radio Waves, eds. C. M. Gaskell, I.M. McHardy, B. M. Peterson, & S. G. Sergeev
- Lewis, K. T., Eracleous, M., Halpern, J. P., & Storchi-Bergmann, T. 2003 “Long Term Profile Variability of Double-Peaked Emission Lines in AGNs”, The Interplay Among Black Holes, Stars, and the ISM in Galactic Nuclei (IAU Symposium No. 222), ed T. Storchi-Bergmann
- Lewis, K. T., Eracleous, M., Halpern, J. P., & Storchi-Bergmann, T. 2003 “Long Term Profile Variability of Double-Peaked Emission Lines in AGNs”, AGN Physics with the Sloan Digital Sky Survey (ASP Conf. Ser. v. 311), eds G. T. Richards & P. B. Hall
- Lewis, K.T. et al. 2002, ASP Conf. Ser. 262:, “The Small-Scale Structure of N103B - Nature or Nurture?”, High Energy Universe at Sharp Focus: Chandra Science Symposium (ASP Conf. Ser. v. 262), eds. S. Vrtilik, E.M. Schlegel, L. Kuhl, 323
- Lewis, K. T. et al. 2001, “Exploring the Small-Scale Structure of N103B”, Young Supernova Remnants. Eleventh Astrophysics Conference (AIP Conf. Proc. V. 565) Eds by Stephen S. Holt and Una Hwang, 181
- Lewis, K. T., Eracleous, M., & Sambruna, R. M. 2001, “Emission-Line Diagnostics of Accretion Flows in Weak-Line Radio Galaxies”, X-ray Emission from Accretion onto Black Holes, Proceedings of a joint JHU/LHEA Workshop. Eds.: T. Yaqoob and J. H. Krolik

- Burrows, D. N., , Maeda, Y., Lewis, K. T., Garmire, G. P., Nousek, J. A., Michael, E., McCray, R., Hwang, U., Petre, R., Holt, S. S., Hughes, J. P., Rakowski, C. E., & Slane, P. 2000, "Chandra Observations of Supernova Remnants", ASP Conf. Ser. 234: X-ray Astronomy 2000, 189
- Hill, J.E., Lewis, K.T., Foster, R.F., Bautz, M., Brown, S.K., Roming, P.W.A., Hornschemeier, A.E., Burrows, D.N., & Garmire, G.P. 2000 "A simulation of the Flight Experience of the ACIS CCDs on the Chandra X-ray Observatory", in X-ray Optics, and Missions, ed. J. Truemper & B. Aschenbach, Proc. SPIE, 4012, 402

### Colloquia and Talks

- "The Radial Structure of SNR N103B - Relic of Explosive Nucleosynthesis?" Dec 10, 2003 CTIO Colloquium, La Sarena, Chile

### Outreach and Service

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| 2004           | Graduate Student representative to the Eberly College of Science Staff Award selection committee.   |
| 2002 – present | Assisted with "Astrofest", a four day outreach event organized by the Penn State Department of Astronomy. I have organized the childrens' activities, given many planetarium shows, and created a Tour of the Electromagnetic Spectrum mural. |
| 2001 – 2003    | Representative on the Astronomy department Graduate Committee.  |
| 2001 – 2002    | Assisted with the Junior Astronomy Museum, a series of monthly presentations and activities for local home-schooled children. I have lead activities on comets and the moon.  |
| 2001 – present | Planetarium shows and other activities for local grade school children.   |
| 2001           | Take Our Daughters to Work Day. Presentation on Supernova Remnants.   |
| 1995 – 1999    | Drop-in tutor with the Physics Club, University of Wisconsin  |