Thomas J. Balonek

Professor of Physics and Astronomy
Department of Physics and Astronomy
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EDUCATIONAL BACKGROUND

Ph.D. (Astronomy)	University of Massachusetts, Amherst, MA, 1982
M.S. (Astronomy)	University of Massachusetts, Amherst, MA, 1977
B.A. (Physics)	Cornell University, Ithaca, NY, 1974

PROFESSIONAL BACKGROUND

Professor of Physics and Astronomy, Colgate University, Hamilton, NY (2002-present)

Chair, Department of Physics and Astronomy, Colgate University, Hamilton, NY (2008-2011)

Visiting Research Scientist, National Astronomy and Ionosphere Center, Cornell University, Ithaca, NY (2006-2007)

Associate Professor of Physics and Astronomy, Colgate University, Hamilton, NY (1991-2002)

Chair, Department of Physics and Astronomy, Colgate University, Hamilton, NY (1995-1998)

Chair, New York Astronomical Corporation (1995-1998)

Visiting Research Scientist, National Radio Astronomy Observatory, Tucson, AZ (1992-1993)

Assistant Professor of Physics and Astronomy, Colgate University, Hamilton, NY (1985-1991)

Visiting Assistant Professor of Astronomy, Williams College, Williamstown, MA (1983-1985)

NASA-ASEE (National Aeronautics and Space Administration and American Society for Engineering Education) Summer Faculty Fellow, NASA-Ames Research Center, Moffett Field, CA (1983, 1984)

Post-Doctoral Research Associate and Lecturer I, University of New Mexico, Albuquerque, NM (1982-1983)

Planetarium Lecturer, Basset Planetarium, Amherst College, Amherst, MA (1979-1981)

Graduate Lecturer in Astronomy (part time), University of Massachusetts, Amherst, MA (1978-1981)

Planetarium Lecturer, Seymore Plnatearium, Springfield Museums, Springfield, MA (1975-1979)

Graduate Research Assistant, University of Massachusetts, Amherst, MA (1975-1981)

Graduate Teaching Assistant, University of Massachusetts, Amherst, MA (1974-1975)

Summer Research Assistant, National Radio Astronomy Observatory, Charlottesville, VA (1974)

Undergraduate Research Assistant (Infrared Astronomy), Cornell University, Ithaca, NY (1973-1974)

Summer Research Assistant, National Astronomy and Ionosphere Center, Arecibo, PR (1973)

Undergraduate Research Assistant (Radio Astronomy), Cornell University, Ithaca, NY (1972-1973)

ASTRONOMICAL / EDUCATIONAL SOCIETY MEMBERSHIP

American Astronomical Society (1979 - present)

Astronomical Society of New York / New York Astronomical Corporation
institutional representative: 1985 - present

Council on Undergraduate Research
Councilor: 1990 – 1993

International Astronomical Union (1988 - present)

RESEARCH INTERESTS

Extragalactic astronomy: compact extragalactic sources
- Optical CCD photometry of variable quasars / blazars
- Broadband spectra and variability of quasars / blazars and active galactic nuclei
- Optical polarization of active quasars / blazars
- Radio variability of quasars
- Radio astronomy

Optical CCD photometry:
- Eclipsing binary stars
- Transiting exoplanets
- Extragalactic supernovae
- Active galactic nuclei: quasars and blazars

Asteroid astrometry

Radio observation of neutral hydrogen gas (HI) in galaxies in the local Universe

COURSES TAUGHT AT COLGATE

Core 122S (Core / Scientific Perspectives): Life in the Universe (introductory)
First-Year Seminar: Life in the Universe (introductory)
First-Year Seminar: Solar System Astronomy (introductory)
First-Year Seminar: Deciphering the Universe: Practical and Historic Astronomy (introductory)
Astronomy 101: Solar System Astronomy (introductory)
Astronomy 102: Stars, Galaxies and the Universe (introductory)
Astronomy 165: How Old is the Universe? (introductory)
Astronomy 210: Intermediate Astronomy and Astrophysics (intermediate)
Astronomy 220: Deciphering the Universe: Practical and Historic Astronomy (introductory)
Astronomy 312 [formerly 212]: Astronomical Techniques (intermediate)
Astronomy 416 [formerly 316]: Galactic and Extragalactic Astronomy (advanced)
Astronomy 320 [formerly 313]: Planetary Science (advanced)
Astronomy 391: Indpendent Study – instructional
Astronomy 391 / 491: Independent Study – student research supervision (advanced)
Physics 310 / 410: student research supervision (advanced)

TEACHING EXPERIENCE

at Colgate University (1985 - 2019)
Department of Physics and Astronomy

Freshman / First Year Seminar (Intelligent Life in the Universe):
Fall 1985, Fall 1986, Fall 1987, Fall 1993

First Year Seminar [as Core Scientific Perspectives] (Life in the Universe: A Cosmic Perspective):
Fall 1999, Fall 2001, Fall 2003, Fall 2007, Fall 2008, Fall 2010, Fall 2014

First Year Seminar (Solar System Astronomy):
Fall 2011

First Year Seminar (Deciphering the Sky: Practical and Historic Astronomy):
Fall 2019

Core 122 [Core Scientific Perspectives] (Life in the Universe: A Cosmic Perspective):
Spring 1999, Spring 2000, Spring 2005, Spring 2010, Spring 2012 (2 sections), Spring 2013, Spring 2019

Astronomy 101 (Solar System Astronomy):
Fall 1988, Fall 1990, Fall 1994, Fall 1996, Fall 1998, Fall 2002, Fall 2004, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2012 (2 sections), Fall 2013 (2 sections), Fall 2015, Fall 2017

Astronomy 101 [Labs] (Solar System Astronomy):
Fall 1985, Fall 1986, Fall 1987, Fall 1988, Fall 1989, Fall 1990, Fall 1991, Fall 1993, Fall 1994, Fall 1995, Fall 1996, Fall 1997, Fall 1998

Astronomy 102 (Stellar Astronomy / Stars, Galaxies and the Universe):
Spring 1986, Spring 1987, Spring 1988, Spring 1990, Spring 1992, Spring 1994, Spring 1996, Spring 1998, Spring 2000, Spring 2002, Spring 2004, Spring 2006, Spring 2008, Spring 2015, Spring 2016, Spring 2017, Spring 2019

Astronomy 102 [Labs] (Stellar Astronomy / Stars, Galaxies and the Universe):
Spring 1986, Spring 1987, Spring 1988, Spring 1989, Spring 1990, Spring 1991, Spring 1992, Spring 1994, Spring 1995, Spring 1996, Spring 1997, Spring 1998, Spring 1999

Astronomy 165 (How Old Is the Unvierse?):
Fall 2014

Astronomy 210 (Intermediate Astronomy):
Fall 1985, Fall 1987, Fall 1990, Fall 1994, Fall 1996, Fall 1998, Fall 2002, Fall 2004

Adtronomy 220 (Deciphering the Sky: Practical and Historic Astronomy):
Spring 2018, Fall 2018

Astronomy 312 [starting Fall 2013; formerly 212] with Lab (Astronomical Techniques):
Fall 1986, Fall 1988, Fall 1991, Fall 1993, Fall 1995, Fall 1997, Fall 1999, Fall 2001, Fall 2003, Fall 2005, Fall 2007, Fall 2009, Fall 2011, Fall 2013, Fall 2015, Fall 2017, Fall 2019

Astronomy 416 [starting Spring 2013; formerly 316] (Galactic and Extragalactic Astronomy):
Spring 1987, Spring 1990, Spring 1995, Spring 1997, Spring 2002, Spring 2006, Spring 2011, Spring 2013, Spring 2015, Spring 2017, Spring 2019

Astronomy 320 (Planetary Science; now 313):
Spring 2004

Astronomy 391 (Independent Study):
Fall 2010 (Pluto is Not a Planet)

Astronomy 391/491 (Independent Study – Research):
Fall 2005 [1 junior], Spring 2008 [1 senior], Fall 2015 [3 juniors], Spring 2017 [2 seniors]

Physics 310 / 410 (Advanced Topics and Experiments):
Spring 1987 [1 senior], Spring 1989 [1 senior], Spring 1990 [3 seniors], Spring 1991 [1 senior], spring 1993 [1 junior], Spring 1994 [3 seniors], Spring 1995 [2 juniors, 2 seniors], Spring 1996 [1 junior, 2 seniors], Spring 1997 [3 seniors], Spring 1998 [1 senior], Spring 1999 [2 seniors], Spring 2002 [2 juniors, 2seniors], Spring 2003 [3 seniors], Spring 2004 [1 senior], Fall 2004/Spring 2005 [1 junior], Fall 2005/Spring 2006 [1 senior], Fall 2007/Spring 2008 [1 senior], Fall 2010 [1 senior], Fall 2012 [3 seniors], Fall 2014 [2 seniors], Fall 2015 [1 senior], Fall 2016 [3 seniors], Fall 2017 [1 senior], Fall 2018 [1 senior], Fall 2019

Astronomy 591/592 (M.A.T.) :
Fall 2017 (Solar System Astronomy), Spring 2018 (Decipering the Sky: Practical and Historic Astronomy), Spring 2019 (Solar System Astronomy), Spring 2019 (Stars, Galaxies and the Universe)

TEACHING EXPERIENCE

at Williams College (1983 - 1985)
Department of Physics and Astronomy

Astronomy / Physics 10 (The New Astronomy):
Winter 1985

Astonomy 102 (Inroduction to Astronomy):
Spring 1984, Spring 1985

Astronomy 111 (Introduction to Astrophysics):
Fall 1983, Fall 1984

Astronomy 313 (Galactic and Extragalactic Astronomy):
Fall 1983

Astronomy 410 (Radio Astronomy Seminar):
Spring 1985

TEACHING EXPERIENCE

at University of New Mexico (1982 - 1983)
Department of Physics and Astronomy

Astronomy 101 (Introduction to Astronomy):
Spring 1982, Fall 1982, Spring 1983

TEACHING EXPERIENCE

at University of Massachusetts – Amherst (1978 - 1981)
Department of Physics and Astronomy
Continuing Education Program

Astronomy 100 (Exploring the Universe):
Spring 1978

Astronomy 100 (Exploring the Universe):
– Team-Taught (taught the third of course indicated)
Winter 1979 (The Solar System)
Winter 1980 (The Stars)
Winter 1981 (The Milky Way, Galaxies and the Universe)

UNIVERSITY SERVICE (AT COLGATE)

Administrative:

Chair, Department of Physics and Astronomy
2008 July – 2011 June (3 years)
1995 July – 1998 June (3 years)

Elected Committees:

Academic Affairs Board

Committee on Admission & Financial Aid

Committee on Campus Planning and Physical Resources

Committee on Information Technology

Appointed Committees:

Benefits Committee

Faculty Development Council

Ho Tung Visualization Laboratory Steering Committee

Picker Interdisciplinary Science Institute

Research Council

Appointed Positions:

Coordinator of Undergraduate Research

Physics and Astronomy Seminar Coordinator

Science Colloquium Coordinator

Admissions Office Search – Faculty Representative

Information Technology Search – Faculty Representative

PUBLICATIONS - Thesis

1. Thomas J. Balonek, "Multi-frequency radio observations of compact extragalactic sources: time variability and correlation with optical variations," PhD. dissertation, University of Massachusetts, 384 pp (1982).

PUBLICATIONS - Books (Instructor's Manuals)

1. Paul A. Heckert and Thomas J. Balonek, Instructor's Manual for "Introductory Astronomy and Astrophysics," fourth edition, by Zeilik & Gregory, Saunders College Publishing, 312 pp (1998).

2. Thomas J. Balonek and Paul A. Heckert, Instructor's Manual for "Introductory Astronomy and Astrophysics," third edition, by Zeilik, Gregory & Smith, Saunders College Publishing, 307 pp (1992).

3. Paul A. Heckert and Thomas J. Balonek, Instructor's Manual for "Introductory Astronomy and Astrophysics," second edition, by Zeilik & Smith, Saunders College Publishing, 178 pp (1987).

4. P.R. Backus and T.J. Balonek, Instructor's Manual for "Drama of the Universe," by George O. Abell, Holt, Rinehart, and Winston, 101 pp (1978).

PUBLICATIONS – Proceedings (editor)

1. Thomas Balonek (editor), Keck Northeast Astronomy Consortium: Proceedings of the 2010 Undergraduate Symposium on Research in Astronomy, pp (2010).

2. Thomas Balonek (editor), Keck Northeast Astronomy Consortium: Proceedings of the 2004 Undergraduate Symposium on Research in Astronomy, 87 pp (2004).

3. Thomas Balonek (editor), Keck Northeast Astronomy Consortium: Proceedings of the 1997 Undergraduate Symposium on Research in Astronomy, 122 pp (1997).

PUBLICATIONS – Refereed Journals

1. Zachary R. Weaver [Colgate 2017], **Thomas J. Balonek**, Svetlana G. Jorstad, Alan P. Marscher, Valeri M. Larionov, Paul S. Smith, Samantha J. Boni [Bridgewater State Univ 2018], George A. Borman, K. J. Chapman [Colgate 2019], Leah G. Jenks [Colgate 2017], Evgenia N. Kopatskaya, Daria A. Morozova, Anna A. Nikiforova, Alina Sabyr [Colgate 2019], Sergey S. Savchenko, Ryan W. Stahlin [Colgate 2018], Yulia V. Troitskaya, Ivan S. Troitsky, Saiyang Zhang [Colgate 2019], *"The June 2016 Optical and Gamma-Ray Outburst and Optical Micro-Variability of the Blazar 3C454.3,"* The Astrophysical Journal, 875, Issue 1, Article id. 15, 15 pp (2019 April 10)

2. Aileen O'Donoghue, Martha P. Haynes, Rebecca A. Koopmann, Michael G. Jones, Riccardo Giovanelli, **Thomas J. Balonek**, David W. Craig, Gregory L. Hallenbeck, G. Lyle Hoffman, David A. Kornreich, Lukas Leisman, Jeffrey R. Miller, *"The Arecibo Pisces-Perseus Supercluster Survey. I. Harvesting ALFALFA,"* The Astronomical Journal, 157, Issue 2, article id. 81, 11 pp (2019 February)

3. Martha P. Haynes, Riccardo Giovanelli , Brian R. Kent, Elizabeth A. K. Adams, **Thomas J. Balonek**, David W. Craig, Derek Fertig, Rose Finn, Carlo Giovanardi, Gregory Hallenbeck, Kelley M. Hess, G. Lyle Hoffman, Shan Huang, Michael G. Jones, Rebecca A. Koopmann, David A. Kornreich, Lukas Leisman, Jeffrey Miller, Crystal Moorman, Jessica O'Connor, Aileen O'Donoghue, Emmanouil Papastergis, Parker Troischt, David Stark, Li Xiao *"The Arecibo Legacy Fast ALFA Survey: The ALFALFA Extragalactic HI Source Catalog,"* The Astrophysical Journal, 861, Issue 1, Article id. 49, 19 pp (2018 July 1)

4. X. Liu, P.P. Yang, J. Liu, B.R. Liu, S.M. Hu, O.M. Kurtanidze, S. Zola, A. Kraus, T.P. Krichbaum, R.Z. Su, K. Gazeas, K. Sadakane, K. Nilson, D.E. Reichart, M. Kidger, K. Matsumoto, S. Okano, M. Siwak, J.R. Webb, T. Pursimo, F.Garcia, R. Naves Nogues, A. Erdem, F. Alicavus, **T. Balonek**, S.G. Jorstad, *"Radio and optical intra-day variability observations of five blazars,"* Monthly Notices of the Royal Astronomical Society, 469, 2457L (2017 August).

5. Martha P. Haynes, Riccardo Giovanelli, Ann M. Martin, Kelley M. Hess, Amélie Saintonge, Elizabeth A. K. Adams, Gregory Hallenbeck, G. Lyle Hoffman, Shan Huang, Brian R. Kent, Rebecca A. Koopmann, Emmanouil Papastergis, Sabrina Stierwalt, **Thomas J. Balonek**, David W. Craig, Sarah J. U. Higdon, David A. Kornreich, Jeffrey R. Miller, Aileen A. O'Donoghue, Ronald P. Olowin, Jessica L. Rosenberg, Kristine Spekkens, Parker Troischt, Eric M. Wilcots, *"The Arecibo Legacy Fast ALFA Survey: The α.40 H I Source Catalog, Its characteristics and their impact on the derivation of the H I Mass Function,"* The Astronomical Journal, 142, Issue 5, article id. 170, 28 pp (2011 November).

6. Patrick M. Ogle, Ann E. Wehrle, **Thomas Balonek**, Mark A. Gurwell, *"Blazar 3C 454.3 in outburst and quiescence during 2005-2007: Two Variable Synchrotron Emission Peaks,"* The Astrophysical Journal Supplement, 195, Issue 2, article id. 19, 20 pp (2011 August).

7. Angela Osterman Meyer, H. Richard Miller, Kevin Marshall, Wesley T. Ryle, Hugh Aller, Margo Aller, **Tom Balonek**, *"Simultaneous multiwavelength and optical microvariability observations of CTA 102 (PKS J2232+1143),"* The Astronomical Journal, 138, 1902-1910 (2009 December).

8. Ritaban Chatterjee, Svetlana G. Jorstad, Alan P. Marscher, Haruki Oh, Ian M. McHardy, Margo F. Aller, Hugh D. Aller, **Thomas J. Balonek**, H. Richard Miller, Wesley T. Ryle, Gino Tosti, Omar Kurtanidze, Maria Nikolashvili, Valeri M. Larionov, Vladimir A. Hagen-Thorn*, "Correlated multi-wave band variability in the Blazar 3C 279 from 1996 to 2007,"* The Astrophysical Journal, 689, 79-94 (2008 December).

9. Rebecca A. Koopmann, Riccardo Giovanelli, Martha P. Haynes, Brian R. Kent, **Thomas J. Balonek**, Noah Brosch, James L. Higdon, John J. Salzer, Oded Spector, *"A 500 kpc H I extension of the Virgo pair NGC 4532/DDO 137 detected by the Arecibo Legacy Fast ALFA (ALFALFA) Survey,"* The Astrophysical Journal, 682, L85-L88 (2008 August).

10. Brian R. Kent, Riccardo Giovanelli, Martha P. Haynes, Ann M. Martin, Amélie Saintonge, Sabrina Stierwalt, **Thomas J. Balonek**, Noah Brosch, Rebecca A. Koopmann, *"The Arecibo Legacy Fast Alfa Survey. VI. Second HI Source Catalog of the Virgo Cluster Region,"* The Astronomical Journal, 136, 713-724 (2008 August).

11. Brian R. Kent, Riccardo Giovanelli, Martha P. Haynes, Amélie Saintonge, Sabrina Stierwalt, **Thomas Balonek**, Noah Brosch, Barbara Catinella, Rebecca A. Koopmann, Emmanuel Momjian, Kristine Spekkens, *"Optically Unseen H I Detections toward the Virgo Cluster detected in the Arecibo Legacy Fast ALFA Survey,"* The Astrophysical Journal, 665, L15-L18 (2007 August).

12. Jeyhan S. Kartaltepe [Colgate 2003], **Thomas J. Balonek**, *"The multiple timescales of optical variability of the Blazar 3C 279 during the 2001-2002 outburst,"* The Astronomical Journal, 133, 2866-2882 (2007 June).

13. Riccardo Giovanelli, Martha P. Haynes, Brian R. Kent, Amélie Saintonge, Sabrina Stierwalt, Adeel Altaf, **Thomas Balonek**, Noah Brosch, Shea Brown, Barbara Catinella, Amy Furniss, Josh Goldstein, G. Lyle Hoffman, Rebecca A. Koopmann, David A. Kornreich, Bilal Mahmood, Ann M. Martin, Karen L. Masters, Arik Mitschang, Emmanuel Momjian, Prasanth H. Nair, Jessica L. Rosenberg, Brian Walsh [Colgate 2006], *"The Arecibo Legacy Fast ALFA Survey. III. H I Source Catalog of the Northern Virgo Cluster Region,"* The Astronomical Journal, 133, 2569-2583 (2007 June).

14. M. Villata, C.M. Raiteri, **T. J. Balonek**, M.F. Aller, S.G. Jorstad, O.M. Kurtanidze, F. Nicastro, K. Nilsson, H.D. Aller, A. Arai, A. Arkharov, U. Bach, E. Benitez, A. Berdyugin, C.S. Buemi, M. Bottcher, D. Carosati, R. Casas, A. Caulet, W.P. Chen, P.-S. Chiang,Y. Chou, S. Ciprini, J.M. Coloma, G. di Rico, C. Diaz, N. V. Efimova, C. Forsyth [Bryn Mawr 2007], A. Frasca, L. Fuhrmann, B. Gadway [Colgate 2007], S. Gupta, V.A. Hagen-Thorn, J. Harvey, J. Heidt, H. Hernandez-Toledo, F. Hroch, C.-P. Hu, R. Hudec,

M.A. Ibrahimov, A. Imada, M. Kamata, T. Kato, M. Katsuura, T. Konstantinova, E. Kopatskaya, D.Kotaka, Y.Y. Kovalev, Yu. A. Kovalev, T.P. Krichbaum, K. Kubota, M. Kurosaki, L. Lanteri, V. M. Larionov, L. Larionova, E. Laurikainen, C.-U. Lee, P. Leto,A. Lanteenmaki, O. Lopez-Cruz, E. Marilli, A.P. Marscher, I.M. McHardy, S. Mondal, B. Mullan [Colgate Univ. 2007], N. Napoleone, M.G. Nikolashvili, J.M. Ohlert, S. Postnikov, T. Pursimo, M. Ragni, J.A. Ros, K. Sadakane, K.; A.C. Sadun, T. Savolainen, E.A. Sergeeva, L. A. Sigua, A. Sillanpaa, L. Sixtova, N. Sumitomo, L.O. Takalo, H. Terasranta, M. Tornikoski, C. Trigilio, G. Umana, A. Volvach, B. Voss, S. Wortell [Colgate 2006], *"The unprecedented optical outburst of the quasar 3C 454.3. The WEBT campaign of 2004-2005,"* Astronomy and Astrophysics, 453, 817-822 (2006 July).

15. M. Villata, C.M. Raiteri, H.D. Aller, M.F. Aller, H. Teräsranta, P. Koivula, S. Wiren, O.M. Kurtanidze, M.G. Nikolashvili, M.A. Ibrahimov, I.E. Papadakis, G. Tosti, F. Hroch, L.O. Takalo, A. Sillanpää, V.A. Hagen-Thorn, V.M. Larionov, R.D. Schwartz, J. Basler, L.F. Brown, **T.J. Balonek**, "*The WEBT campaigns on BL Lacertae. Time and cross-correlation analysis of optical and radio light curves 1968-2003,*" Astronomy and Astrophysics, 424, 497-507 (2004 September).

16. M. Villata, C.M. Raiteri, O.M. Kurtanidze, M.G. Nikolashvili, M.A. Ibrahimov, I.E. Papadakis, G. Tosti, F. Hroch, L.O. Takalo, A. Sillanpää, V.A. Hagen-Thorn, V.M. Larionov, R.D. Schwartz, J. Basler, L.F. Brown, **T.J. Balonek**, E. Benítez, A. Ramírez, A.C. Sadun, P. Boltwood, M.T. Carini, D. Barnaby, J.M. Coloma, J.A. Ros, B.Z. Dai, G.Z. Xie, J.R. Mattox, D. Rodriguez, I.M. Asfandiyarov, A. Atkerson, J.L. Beem, S.D. Bloom, S.M. Chanturiya, S. Ciprini, S. Crapanzano, J.A.; de Diego, N.V. Efimova, D. Gardiol, J.C. Guerra, B.B. Kahharov, B.Z. Kapanadze, H. Karttunen, T. Kato, G.N. Kimeridze, N.A. Kudryavtseva, M. Lainela, L. Lanteri, E.G. Larionova, M. Maesano, N. Marchili, G. Massone, T. Monroe, F. Montagni, R. Nesci, K. Nilsson, J.C. Noble, G. Nucciarelli, L. Ostorero, J. Papamastorakis, M. Pasanen, C.S. Peters, T. Pursimo, P. Reig, W. Ryle, S. Sclavi, L.A. Sigua, M. Uemura, W. Wills,*"The WEBT BL Lacertae Campaign 2001 and its extension. Optical light curves and colour analysis 1994-2002,"* Astronomy and Astrophysics, 421, 103-114, (2004 July).

17. William Herbst, Catrina M. Hamilton, Frederick J. Vrba, Mansur A. Ibrahimov, Coryn A.L. Bailer-Jones, Reinhard Mundt, Markus Lamm, Tsevi Mazeh, Zodiac T. Webster, Karl E. Haisch, Eric C. Williams, Andrew H. Rhodes, **Thomas J. Balonek**, Alexander Scholz, Arno Riffeser, *"Fine Structure in the Circumstellar Environment of a Young, Solar-like Star: The Unique Eclipses of KH 15D,"* The Publications of the Astronomical Society of the Pacific, 114, 1167-1172, (2002 November).

18. M. Ravasio, G. Tagliaferri, G. Ghisellini, P. Giommi, R. Nesci, E. Massaro, L. Chiappetti, A. Celotti, L. Costamante, L. Maraschi, F. Tavecchio, G. Tosti, A. Treves, A. Wolter, **T. Balonek**, M. Carini, T. Kato, O. Kurtanidze, F. Montagni, M. Nikolashvili, J. Noble, G. Nucciarelli, C.M. Raiteri, S. Sclavi, M. Uemura, M. Villata, *"BL Lacertae: Complex spectral variability and rapid synchrotron flare detected with BeppoSAX,"* Astronomy & Astrophysics, 383, 763-772, (2002 March).

19. C.M. Raiteri, M. Villata, H.D. Aller, M.F. Aller, J. Heidt, O.M. Kurtanidze, L. Lanteri, M. Maesano, E. Massaro, F. Montagni, R. Nesci, K. Nilsson, M.G. Nikolashvili, P. Nurmi, L. Ostorero, T. Pursimo, R. Rekola, A. Sillanpää, L.O. Takalo, H. Teräsranta, G. Tosti, **T.J. Balonek**, M. Feldt, A. Heines, C. Heisler, J. Hu, M. Kidger, J.R. Mattox, E.J. McGrath [Vassar 2001], A. Pati, R. Robb, A. Sadun, P. Shastri, S.J. Wagner, J. Wei, X. Wu, *"Optical and radio variability of the BL Lacertae object AO 0235+16: A possible 5-6 year periodicity,"* Astronomy & Astrophysics, 377, 396-412, (2001 October).

20. R.C. Hartman, M. Villata, **T.J. Balonek**, D.L. Bertsch, H. Bock, M. Bottcher, M.T. Carini, W. Collmar, G. DeFrancesco, E.C. Ferrara, J. Heidt, G. Kanbach, S. Katajainen, M. Koskimies, O.M. Kurtanidze, L. Lanteri, A. Lawson, Y.C. Lin, A.P. Marscher, J.P. McFarland, I. McHardy, H.R. Miller, M. Nikolashvili, K. Nilsson, J.C. Noble, G. Nucciarelli, L. Ostorero, T. Pursimo, C.M. Raiteri, R. Rekola, T. Savalainen, A. Sillanpaa, A. Smale, G. Sobrito, L.O. Takalo, D.J. Thompson, G. Tosti, S.J. Wagner, J.W. Wilson, *"Day-scale variability of 3C 279 and possible correlations in gamma-ray, x-ray, and optical bands,"* Astrophysical Journal, 558, 583-589, (2001 September).

21. R.C. Hartman, M. Bottcher, G. Aldering, H. Aller, M. Aller, D.E. Backman, **T.J. Balonek**, D.L. Bertsch, S.D. Bloom, H. Bock, P. Boltwood, M.T. Carini, W. Collmar, G. DeFrancesco, E.C. Ferrara, W. Freudling, W.K. Gear, P.B. Hall, J. Heidt, P. Hughes, S.D. Hunter, S. Jogee, W.N. Johnson, G. Kanbach, S. Katajainen, M. Kidger, T. Kii, M. Koskimies, A. Kraus, H. Kubo, O. Kurtanidze, L. Lanteri, A. Lawson, Y.C. Lin, U. Lisenfeld, G. Madejski, F. Makino, L. Maraschi, A.P. Marscher, J.P. McFarland, I. McHardy, H.R. Miller, M. Nikolashvili, K. Nilsson, J.C. Noble, G. Nucciarelli, L. Ostorero, E. Pian, T. Pursimo, C.M. Raiteri, W. Reich, R. Rekola, G.M. Richter, E.I. Robson, A. Sadun, T. Savalainen, A. Sillanpaa, A. Smale, G. Sobrito, P. Sreekumar, J.A. Stevens, L.O. Takalo, F. Tavecchio, H. Terasranta, D.J. Thompson, M. Tornikoski, G. Tosti, H. Ungerechts, C.M. Urry, E. Valtaoja, M. Villata, S.J. Wagner, A.E. Wehrle, J.W. Wilson, *"Multiepoch multiwavelength spectra and models for blazar 3C 279,"* Astrophysical Journal, 553, 683-694 (2001).

22. J. R. Webb, E. Howard, E. Benitez, **T. Balonek**, E. McGrath [Vassar 2001], C. Shrader, I. Robson, P. Jenkins, *"The 1997 outburst of AO 0235+164: Evidence for a microlensing event?"* Astronomical Journal, 120, 41-46 (2000 July).

23. D.A. Lubowich, J.M. Pasachoff, **T.J. Balonek**, T.J. Millar, C. Tremonti [Colgate 1994], H. Roberts, R.P. Galloway, *"Deuterium in the Galactic Centre as a result of recent infall of low-metallicity gas,"* Nature, 405, Issue 6790, 1025-1027 (2000 June).

24. D. Devine, B. Reipurth, J. Bally, **T.J. Balonek**, *"A Giant Herbig-Haro Flow from Haro 6-10,"* Astronomical Journal, 117, 2931-2940 (1999 June).

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27. **T.J. Balonek**, *Minor Planet Circulars*, 1993 February 6, p 21386, 1 observation of 1 asteroid at Colgate Observatory [1992 JB].

28. **T.J. Balonek**, *Minor Planet Circulars*, 1992 May 16, p 20109-20110, 4 observations of 1 asteroid at Colgate Observatory [1992 FO1].

29. **T.J. Balonek**, T. Tongue [Clarkson 199?], *Minor Planet Circulars*, 1992 April 17, p 19972, 13 observations of 2 asteroids at Colgate Observatory [1992 FO1, 1992 GF].

30. **T.J. Balonek**, *Minor Planet Circulars*, 1991 June 27, p 18351-18352, 8 observations of 2 asteroids at Colgate Observatory [1991 GZ4, 1991 HA].

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Also Reported in Minor Planet Circulars

Minor Planet Circulars, 1996 May 3, p 27129, announcement of asteroid #6452 = 1991 HA (discovered 1991 April 17 at Colgate University Foggy Bottom Observatory by T.J. Balonek) being named *Johneuller* (in honor of discoverer's high school physics teacher).

ASTEROID DISCOVERIES:

	#347162	1995 GR8 (2011 FN12)	discovered 1995 April 08 at Kitt Peak Observatory - Burrell Schmidt
	#162023	1995 GP8	discovered 1995 April 08 at Kitt Peak Observatory - Burrell Schmidt
	#100307	1995 GJ8	discovered 1995 April 08 at Kitt Peak Observatory - Burrell Schmidt
	# 85323	1995 GF8	discovered 1995 April 08 at Kitt Peak Observatory - Burrell Schmidt
	# 52463	1995 GA8	co-discovered 1995 April 06 at Kitt Peak Observatory - Burrell Schmidt
	# 48496	1993 BM3	discovered 1993 January 26 at Kitt Peak Observatory - Burrell Schmidt
	# 14462	1993 GA	discovered 1993 April 02 at Kitt Peak Observatory - Burrell Schmidt
	# 9613	1993 BN3	discovered 1993 January 26 at Kitt Peak Observatory - Burrell Schmidt
Johneuller	# 6452	1991 HA	discovered 1991 April 17 at Colgate University Foggy Bottom Observatory

PUBLICATIONS – Transiting Exoplant Photometry
Reported in Exoplanet Transit Database

[see: var2.astro.cz/ETD/etd.php?STARNAME=TrES-1&PLANET=b]

1. Katie Iadanza [Colgate 2013] & **Thomas Balonek**, observations of TrES-1b transit on 2012 July 02.

2. Katie Iadanza [Colgate 2013] & **Thomas Balonek**, observations of TrES-1b transit on 2012 June 17.

3. Katie Iadanza [Colgate 2013] & **Thomas Balonek**, observations of TrES-1b transit on 2012 June 14.

4. Katie Iadanza [Colgate 2013] & **Thomas Balonek**, observations of TrES-1b transit on 2012 June 11.

5. Brian Walsh [Colgate 2006], **Thomas Balonek** & Katie Iadanza [Colgate 2013], observations of TrES-1b transit on 2004 September 20.

6. Brian Walsh [Colgate 2006], **Thomas Balonek** & Katie Iadanza [Colgate 2013], observations of TrES-1b transit on 2004 September 11.

PUBLICATIONS – ABSTRACTS of Conference Papers

1. **Thomas J. Balonek**, Zachary R. Weaver [Colgate 2017], Nicholas Didio [Colgate 2016], Leah Jenks [Colgate 2017], Carolyn Morris [Colgate 2017], Ryan W. Stahlin [Colgate 2018], Jovana Zagorac [Colgate 2016], Katie Chapman [Colgate 2019], Brian D'Auteuil [Colgate 2016], Katherine L. Karnes [Colgate 2017], Joshua S. Reding [Colgate 2015], Alina Sabyr [Colgate 2019], Saiyang Zhang [Colgate 2019], Samantha J. Boni [Bridgewater State Univ 2018], Caitlin Rose [Vassar 2017], Anneliese Rilinger [Williams 2017], *"The Optical Variability of the Blazar 3C 454.3 over Three Decades from the Colgate University Foggy Bottom Observatory,"* American Astronomical Society, AAS Meeting #229, paper #250.34 (2017 January).

2. Zachary R. Weaver [Colgate 2017], **Thomas J.** Balonek, *"The Dramatic June 2016 Optical Outburst and Micro-Variability of the Blazar 3C 454.3,"* American Astronomical Society, AAS Meeting #229, paper #250.33 (2017 January).

3. Joseph Ribaudo, Rebecca A. Koopmann, Martha P. Haynes, **Thomas J. Balonek**, John M. Cannon, Kimberly A. Coble, David W. Craig, Grant R. Denn, Adriana Durbala, Rose Finn, Gregory L. Hallenbeck, G. Lyle Hoffman, Mayra E. Lebron, Brendan P. Miller, Mary Crone-Odekon, Aileen A. O'Donoghue, Ronald Paul Olowin, Carmen Pantoja, Daniel J. Pisano, Jessica L. Rosenberg, Parker Troischt, Aparna Venkatesan, Eric M. Wilcots, ALFALFA Team, *"The NSF Undergraduate ALFALFA Team: Partnering with Arecibo Observatory to Offer Undergraduate and Faculty Extragalactic Radio Astronomy Research Opportunities,"* American Astronomical Society, AAS Meeting #229, paper #137.03 (2017 January).

4. Rebecca A. Koopmann, **Thomas J. Balonek**, John M. Cannon, Kimberly A. Coble, David W. Craig, Adriana Durbala, Rose Finn, Gregory L. Hallenbeck, Martha P. Haynes, Sarah Higdon, G. Lyle Hoffman, David A. Kornreich, Mayra E. Lebron, Mary Crone-Odekon, Aileen A. O'Donoghue, Ronald Paul Olowin, Carmen Pantoja, Jessica L. Rosenberg, Parker Troischt, Aparna Venkatesan, Eric M. Wilcots, ALFALFA Team, *"The Undergraduate ALFALFA Team: A Collaboration for Undergraduate Research Opportunities and Faculty Development,"* American Astronomical Society, AAS Meeting #227, paper #313.06 (2016 January).

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Aileen A. O'Donoghue, Ronald Paul Olowin, Carmen Pantoja, Jessica L. Rosenberg, Aparna Venkatesan, Eric M. Wilcots, ALFALFA Team, *"The Undergraduate ALFALFA Team: A Model for Involving Undergraduates in Major Legacy Astronomy Research,"* American Astronomical Society, AAS Meeting #225, paper #240.07 (2015 January).

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68. P. Smith, R. Elston, **T. Balonek**, M. Zeilik, J. Burns, C. Impey, P. Heckert, R. Barvainis, J. Kenney, G. Schmidt, J. Puschell, *"Optical photometry and polarimetry of OJ 287 during its January 1983 outburst,"* Proceedings of the Southwest Regional Conference on Astronomy and Astrophysics, May 1983 (1983).

69. J.O. Burns, **T.J. Balonek**, *"The curvature of radio jets and tails in the intracluster media of Abell 1440 and 2220,"* Bulletin of the American Astronomical Society, 14, No. 2, 659 (1982 March).

70. **T.J. Balonek**, W.A. Dent, *"Correlated outbursts in extragalactic sources at radio and optical wavelengths,"* Bulletin of the American Astronomical Society, 14, No. 2, 635 (1982 March).

71. **T.J. Balonek**, W.A. Dent, C. O'Dea, *"Measurements of extragalactic variable sources at five radio frequencies,"* Bulletin of the American Astronomical Society, 12, No. 2, 507 (1980 March).

72. C.P. O'Dea, W. Dent, E. Tademaru, **T.J. Balonek**, *"A model for 3C84,"* Bulletin of the American Astronomical Society, 12, No. 2, 497 (1980 March).

73. **T.J. Balonek**, W.A. Dent, *"Rapid radio outbursts in the quasi-stellar source 1510-08,"* Bulletin of the American Astronomical Society, 11, No. 2, 458 (1979 March).

74. W.A. Dent, **T.J. Balonek**, A.G. Smith, R.J. Leacock, *"The observation of a correlated time delayed radio-optical outburst in the quasar 0420-01,"* Bulletin of the American Astronomical Society, 10, No. 4, 690 (1978 November).

75. **T.J. Balonek**, W.A. Dent, *"Multifrequency observations of the variable quasi-stellar radio source 0735+178,"* Bulletin of the American Astronomical Society, 10, No.2, 449 (1978 March).

76. W.A. Dent, J.E. Kapitzky, **T.J. Balonek**, *"Variations of extragalactic radio sources at 15.5 GHz,"* Bulletin of the American Astronomical Society, 9, No.2, 335 (1977 March).

77. J.J. Condon, **T.J. Balonek**, D.L. Jauncey, *"Optical identification of sources in the NRAO 5-GHz D-survey,"* Bulletin of the American Astronomical Society, 6, 461 (1974 September).

GRANTS RECEIVED (EXTERNAL)

NATIONAL SCIENCE FOUNDATION (Principal Investigator):

"ALFALFA Undergraduate Team (UAT)"
National Science Foundation (Astronomy), September 2007
Consortium grant for fourteen institutions in the UAT, administered at Colgate University
five years (extended to six – through August 2013), $130,540 total
student and faculty travel to Arecibo Observatory in Puerto Rico to conduct radio astronomy observations, student and faculty travel to professional meetings to present research, computer systems for data reduction and analysis

NASA / NEW YORK SPACE GRANT (Colgate respresentative on grant):

"New York / NASA Space Grant" {administered by Cornell University}
May 2018; May 2019
each one year, $10,000, matched by Colgate University
student research support, local educational outreach

"New York / NASA Space Grant" {administered by Cornell University}
February, 2000; February, 2001; February, 2002; February, 2003; February 2004; April, 2005; April 2006; April 2007; April 2008; April 2009; April 2010; April 2011; April 2012; April 2013; April 2014; May 2015; May 2016; May 2017
each one year, $5,000, matched by Colgate University
student research support, local educational outreach

"New York / NASA Space Grant" [with Rich April] {administered by Cornell University}
October, 1997; February, 1998; February, 1999
each one year, $10,000, matched by Colgate University
student research support, local educational outreach

KECK NORTHEAST ASTRONOMY CONSORTIUM (Colgate representative on grant):

"REU Site: The Keck Northeast Astronomy Consortium" [co-investigator] {administered by Wesleyan University}
National Science Foundation (AST – MPS/AST – Special Programs in Astronomy), September 2010
consortium grant to eight colleges in the Keck Northeast Astronomy Consortium
five years, $471,990 total
student summer research participation, student research symposium, and other

"REU Site: The Keck Northeast Astronomy Consortium" [co-investigator] {administered by Wesleyan University}

National Science Foundation (AST – MPS/AST – Special Programs in Astronomy), January 2007
consortium grant to eight colleges in the Keck Northeast Astronomy Consortium
three years, $330,990 total
student summer research participation, student research symposium, and other

“The Keck Northeast Astronomy Consortium” [co-investigator] {administered by Wesleyan University}
National Science Foundation (AST – MPS/AST – Special Programs in Astronomy), May 2004
consortium grant to eight colleges in the Keck Northeast Astronomy Consortium
two years, $201,502 total
student summer research participation, student research symposium, and other

"Keck Northeast Astronomy Consortium - A Consortium of Astronomers at Eight Liberal Arts Colleges" [co-investigator] {administered by Wellesley College}
W.M. Keck Foundation, January 1998
consortium grant to eight colleges in the Keck Northeast Astronomy Consortium
three years, $500,000 total
student summer and academic year research participation, student research symposium, and other

"Keck Northeast Astronomy Consortium - A Consortium of Astronomers at Eight Liberal Arts Colleges" [co-investigator] {administered by Wellesley College}
W.M. Keck Foundation, January 1996
consortium grant to eight colleges in the Keck Northeast Astronomy Consortium
two years, $300,000 total
student summer and academic year research participation, student research symposium, and other

"Keck Northeast Astronomy Consortium - A Consortium of Astronomers at Eight Liberal Arts Colleges" [co-investigator] {administered by Wellesley College}
W.M. Keck Foundation, January 1994
consortium grant to eight colleges in the Keck Northeast Astronomy Consortium
two years, $230,000 total
student summer and academic year research participation, student research symposia, and other

"Keck Northeast Astronomy Consortium - A Consortium of Astronomers at Eight Liberal Arts Colleges" [co-investigator] {administered by Wellesley College}
W.M. Keck Foundation, January 1992
consortium grant to eight colleges in the Keck Northeast Astronomy Consortium
two years, $550,000 total
student summer and academic year research participation, student research symposia, equipment, and other

"Keck Northeast Astronomy Consortium - A Consortium of Astronomers at Eight Liberal Arts Colleges" [co-investigator] {administered by Wellesley College}
W.M. Keck Foundation, January 1990
consortium grant to eight colleges in the Keck Northeast Astronomy Consortium
two years, $750,000 total
student summer and academic year research participation, student research symposia, CCD electronic camera, image processing workstations and related equipment, faculty representatives meeting, and other

OTHER GRANTS:

"Optical UBVRI Light Curves of Extragalactic Supernovae"
American Astronomical Society - Research Experiences for Undergraduates program, June 1994
one year, $4,750
summer stipend and travel expenses (for observing and meeting attendance) for visiting undergraduate student

"Undergraduate Research in Observational Cosmology" [co-investigator]
New York State Pew Cluster, 1993
one year, $23,000
with Martha Haynes and Riccardo Giovanelli, Cornell University
summer research stipends for six students, travel support for six students to observe with CWRU/KPNO Burrell Schmidt telescope

"CCDs and Spectroscopy for Introductory and Intermediate Students" [co-investigator]
National Science Foundation - Instrumentation and Laboratory Improvement (NSF-ILI), June 1992
two years, $80,000 total, consortium grant to eight colleges in the Keck Northeast Astronomy Consortium, administered through Wellesley College
CCD spectroscope and auxiliary equipment for use in intermediate/introductory courses

"CCD Photometry of Quasars and Variable Stars"
American Astronomical Society Small Research Grant Program, June 1989
one year, $800
computer supplies for CCD research at Colgate Observatory

IAU Symposium No. 134 on "Active Galactic Nuclei"
Symposium Organizing Committee and California Space Institute, University of California (Calspace), August 1988
$350
travel grant to cover partial expenses for attendance at meeting in Santa Cruz, CA

International Astronomical Union (IAU) "General Assembly"
IAU and the United States National Committee to the IAU, August 1988

$800
travel grant to cover partial expenses for attendance at meeting in Baltimore, MD

"High Sensitivity Charged Coupled Device (CCD) Imaging in Astronomy"
National Science Foundation - College Science Instrumentation Program (NSF-CSIP), June 1987
two years, $32,297, matched by Colgate University
for purchase of a CCD camera imaging and computer system for use at Colgate Observatory

"Observations of the Broadband Optical-Radio Variability in Quasars and Active Galaxies"
Research Corporation - William and Flora Hewlett Foundation Grant, March 1987
two years, $16,000
for travel to observatories, student and faculty summer wages, equipment

"A Local Astronomy Newsletter"
V.M. Slipher Fund Committee, July 1986
one year, $300
to produce a local astronomy newsletter

RESEARCH PAPERS
PRESENTED AT PROFESSIONAL MEETINGS

1. *"The Optical Variability of the Blazar 3C 454.3 over Three Decades from the Colgate University Foggy Bottom Observatory,"* joint poster paper (with student Zachary Weaver [Colgate 2017]), American Astronomical Society meeting, Grapevine, TX, January 2017.

2. *"The 2013-2015 Optical Outburst and Historic Light Curve of the Blazar 3C 454.3,"* poster paper, American Astronomical Society meeting, Kissimmee, FL, January 2016.

3. *"Teaching Celestial Motions in Astronomy 101 using the Digital Fulldome Planetarium Environment,"* oral paper, American Astronomical Society meeting, Austin, TX, January 2012.

4. *"Twenty-Year Optical Variability of The Blazar PKS 1749+096: Exponential Outbursts?"* joint poster paper (with student M. T. Lam [Colgate 2011]), American Astronomical Society meeting, Seattle, WA, January 2011.

5. *"Twenty-Year Optical Variability and Correlated Optical - Radio Outbursts of the Blazar PKS 1749+096,"* poster paper, American Astronomical Society meeting, Washington, DC, January 2010.

6. *"The 2007 and 2008 Optical Outbursts of the Blazar PKS 1749+096,"* poster paper, American Astronomical Society meeting, Long Beach, CA, January 2009.

7. *"The Historic Optical Light Curve and 2007 Outburst of Quasar PKS 1749+096,"* poster paper, American Astronomical Society meeting, Austin, TX, January 2008.

8. "The Arecibo Legacy Fast ALFA HI Survey: The Rich Galaxy Group Zwicky 1400+0949," poster paper, American Astronomical Society meeting, Seattle, WA, January 2007.

9. *"Optical Variability of the Blazar 3C 454.3: Long-term Behavior and the Dramatic 2005 Outburst,"* poster paper, American Astronomical Society meeting, Washington, DC, January 2006.

10. *"Monitoring Optical Variability of Quasars and Stars at a Small Campus Observatory,"* oral paper, American Astronomical Society meeting, Washington, DC, January 2006.

11. *"Quasars and Variable Stars at the Colgate University Foggy Bottom Observatory,"* oral paper, Astronomical Society of New York meeting, Canton, NY, April 2005.

12. *"The Blazar Optical Monitoring Program at Colgate University's Foggy Bottom Observatory,"* poster paper, Blazar Conference, Miami, FL, March 2005.

13. *"Sixteen Years of Faculty and Undergraduate Student Research at Colgate University's Foggy Bottom Observatory,"* poster paper, American Astronomical Society meeting, San Diego, CA, January 2005.

14. *"Life in the Universe: A Cosmic Perspective,"* poster paper (based upon my Core/Scientific Perspectives course), Astrobiology Science Conference 2004, NASA Ames Research Center, Mountain View, CA, March 2004.

15. *"The Blazar Optical Monitoring Program at Colgate University's Foggy Bottom Observatory,"* poster paper, American Astronomical Society meeting, Nashville, TN, May 2003.

16. *"The Various Timescales in the Optical Variability of the Blazar 3C 279,"* joint poster paper (with student J.S. Kartaltepe [Colgate 2003]), American Astronomical Society meeting, Seattle, WA, January 2003.

17. *"The Keck Northeast Astronomy Consortium,"* invited speaker in a panel discussion at Council on Undergraduate Research (CUR) conference at Connecticut College, June 2002.

18. "*Optical Variability of the Blazar 3C 279,*" oral paper (with co-author J.S.Kartaltepe [Colgate 2003]), American Astronomical Society meeting, Albuquerque, NM, June 2002.

19. *"Optical Outbursts of the Blazar BL Lacertae in 2000-2001,"* joint poster paper (L.F.Brown, T.J.Balonek, J.L.Beem, E.K.Fryer [Colgate 2003], M.A.Caler [Colgate 2002], C.S.Peters), American Astronomical Society meeting, Washington, DC, January 2002.

20. *"Microvariability of the Blazar 3C 279 During the 2001 Optical Outburst,"* joint poster paper (with student J.S.Kartaltepe [Colgate 2003]), American Astronomical Society meeting, Washington, DC, January 2002.

21. "*Optical variability of blazers,*" poster paper, Blazar Demographics and Physics meeting, Baltimore, MD, July 2000.

22. "*Optical monitoring of highly variable quasars,*" oral paper, Probing the Physics of Active Galactic Nuclei meeting, Greenbelt, MD, June 2000.

23. "*A history of correlations between optical and radio outbursts in the blazar AO 0235+164,*" joint poster paper (with student, E. McGrath [Vassar 2001]), American Astronomical Society meeting, Rochester, NY, June 2000.

24. "*A class exercise: Studying the eclipsing binary star RZ Cas through visual observations,*" joint poster paper (with former student, S.M. Davis [Colgate 1997]), American Astronomical Society meeting, Atlanta, GA, January 2000.

25. "*The Microvariability of BL Lacertae During the 1997 Optical Outburst,*" poster paper, American Astronomical Society meeting, Austin, TX, January 1999.

26. "*An Intense Outburst in the Quasar BL Lacertae,*" oral paper, Astronomical Society of New York meeting, Schenectady, NY, October 1997.

27. "*RZ Cassiopeiae: Evidence for Spots on the Surface of the Primary Star in the Algol-type Eclipsing Binary System,*" joint poster paper (with student, S.M. Davis [Colgate 1997]), American Astronomical Society meeting, Toronto, Ontario, Canada, January 1997.

28. "*Optical variability of the BL Lac Object 1418+546,*" joint poster paper (with student, A.F. Schirmer [Swarthmore 1997]), American Astronomical Society meeting, Toronto, Ontario, Canada, January 1997.

29. "*Astronomy at a Small Observatory,*" invited oral paper, Astronomical Society of New York meeting, Alfred, NY, April 1996.

30. "*Optical Variability of Quasars and Active Galaxies,*" poster paper, Broadband Emission from Blazars meeting, Miami, FL, February 1996.

31. "*SN 1993J in M 81: The UBVRI light curves during the first 450 days,*" joint poster paper (with student, N. Silvestri [Union 1995]), American Astronomical Society meeting, Tucson, AZ, January 1995.

32. "*Optical broadband variability of the blazar OJ 287,*" joint poster paper (with student, C.A. Tremonti [Colgate 1994]), American Astronomical Society meeting, Tucson, AZ, January 1995.

33. "*Short timescale optical variability of quasars and Seyfert galaxies,*" oral paper, Astronomical Society of New York meeting, Stony Brook, NY, April 1994.

34. "*UBVRI light curves of Supernova 1993J in M 81,*" oral paper, Astronomical Society of New York meeting, Schenectady, NY, October 1993.

35. "*Undergraduate astronomy research utilizing charge-coupled devices (CCDs) on small telescopes,*" invited oral paper, American Association of Physics Teachers meeting, Boise, ID, August 1993.

36. "*Transcontinental parallax measurements of asteroids 1991 TB1 and 1992 JB,*" joint poster paper, American Astronomical Society meeting, Phoenix, AZ, January 1993.

37. "*Astronomical CCD imaging of active galaxies, quasars, and extragalactic supernovae,*" poster paper, Council on Undergraduate Research National Conference, Holland, MI, June 1992.

38. "*CCD photometry and astrometry at Colgate University,*" poster paper, American Astronomical Society - American Association of Variable Star Observers joint meeting, Columbus, OH, June 1992.

39. "*Real-world CCD imaging with small telescopes,*" invited oral paper, American Astronomical Society - American Association of Variable Star Observers joint meeting, Columbus, OH, June 1992.

40. "*CCD's at small institutions,*" joint oral paper (with F. Chromey), Astronomical Society of New York meeting, Ithaca, NY, April 1992.

41. "*High sensitivity charge-coupled device (CCD) imaging in undergraduate astronomy,*" invited oral paper, American Astronomical Society meeting — Education Session, Atlanta, GA, January 1992.

42. "*Broadband VRI variations of Supernova 1991T in NGC 4527,*" poster paper, American Astronomical Society meeting, Atlanta, GA, January 1992.

43. "*Observations of extragalactic supernovae broadband light curves using CCDs,*" invited oral paper, American Astronomical Society meeting — Working Group on Astronomical Imaging Technology Session, Atlanta, GA, January 1992.

44. "*CCD photometry of quasars and active galactic nuclei,*" oral paper, Astronomical Society of New York meeting, Troy, NY, November 1990.

45. "*Multi-color CCD photometry of quasars, BL Lacertae objects and active galaxies,*" poster paper, American Astronomical Society meeting, Albuquerque, NM, June 1990.

46. "*Multi-color photometry of active quasars and BL Lacertae objects,*" poster paper, Georgia State University Conference on Variability of Active Galactic Nuclei, Atlanta, GA, May 1990.

47. "*CCD photometry of supernovae 1989A in NGC 3687 and 1989B in M66,*" poster paper, American Astronomical Society meeting - Ann Arbor, MI, June 1989.

48. "*CCDs and the undergraduate — Is it a teaching or research instrument?*" oral paper, Evalyn A. Clark Annual Symposium on Excellence in Teaching, Vassar College, Poughkeepsie, NY, April 1989.

49. "*The Colgate Observatory CCD - First light,*" oral paper, Astronomical Society of New York meeting, Troy, NY, October 1988.

50. "'*Variable Star Observing*' *of quasars,*" oral paper, American Association of Variable Star Observers meeting, Cambridge, MA, October 1988.

51. "*Optical-infrared continuum spectra and polarization of quasars,*" poster paper, International Astronomical Union (IAU) Symposium No. 134 on Active Galactic Nuclei, Santa Cruz, CA, August 1988.

52. "*Using CCD's in Introductory-Level College Astronomy Courses,*" poster paper, International Astronomical Union (IAU) Colloquium No. 105 on Teaching of Astronomy, Williamstown, MA, July 1988.

53. "*Blue bumps and accretion disks in quasars,*" oral paper, Astronomical Society of New York meeting, Poughkeepsie, NY, April 1988.

54. "*Broadband visual-infrared photopolarimetry of quasars,*" poster paper, Georgia State University Conference on Active Galactic Nuclei, Atlanta, GA, October 1987.

55. "*Astronomy at Colgate,*" oral paper, Astronomical Society of New York meeting, Hamilton, NY, April 1987.

56. "*A polarimetric search for accretion disk emission components in OVV quasars,*" joint poster paper, George Mason Workshop on 'Supermassive Black Holes', Fairfax, VA, October 1986.

57. "*Optical and near-infrared polarization of the quasar 3C345,*" oral paper, Astronomical Society of New York meeting, Rochester, NY, April 1986.

58. "*Wavelength-dependent polarization in BL Lacertae objects and OVV quasars,*" joint oral paper, NOAO Workshop on "Continuum Emission in Active Galactic Nuclei", Tucson, AZ, January 1986.

59. "*Radio-optical broadband spectra and variability of quasars,*" oral paper, NOAO Workshop on "Continuum Emission in Active Galactic Nuclei", Tucson, AZ, January 1986.

60. "*Optical polarization and brightness variability in BL Lacertae objects and OVV quasars,*" joint poster paper, American Astronomical Society meeting - Houston, TX, January 1986.

61. "*Multifrequency observations of four BL Lacertae objects,*" joint poster paper, American Astronomical Society meeting - Tucson, AZ, January 1985.

62. "*The optical polarization properties of the quasar 3C345,*" joint poster paper, American Astronomical Society meeting - Tucson, AZ, January 1985.

63. "*Simultaneous optical, infrared, and radio photopolarimetry of quasars,*" joint poster paper, American Astronomical Society meeting - Las Vegas, NV, January 1984.

64. "*Measurements of extragalactic variable sources at five radio frequencies,*" poster paper, American Astronomical Society meeting - College Park, MD, June 1980.

65. "*Radio variability of quasars and galactic nuclei,*" oral paper, 'Quasar Surveys' meeting, University Park, PA, June 1979.

66. "*Rapid radio outbursts in the quasi-stellar source 1510-08,*" oral paper, American Astronomical Society meeting - Wellesley, MA, June 1979.

67. "*Multifrequency observations of the variable quasi-stellar radio source 0735+178,*" oral paper, American Astronomical Society meeting - Madison, WI, June 1978.

68. "*Variations of extragalactic radio sources at 15.5 GHz,*" oral paper, American Astronomical Society meeting - Atlanta, GA, June 1977.

RESEARCH SEMINARS
PRESENTED AT UNIVERSITIES / COLLEGES

1. *"(My) Thirty years at the Foggy Bottom Observatory,"* Colgate University, Dept. of Physics and Astronomy Seminar, October 2015.

2. *"Sixty years of astronomy at the Foggy Bottom Observatory: Going from a=0 to z=1,"* Colgate University Division of Natural Sciences and Mathematics Colloquium, September 2011.

3. *Eighteen years of sleepless nights: Determining the timescales of optical variability of the blazar 3C 279,"* Cornell University, Department of Astronomy Galaxy Lunch, April 2007.

4. *"Thirteen years of quasars and active galaxies at the Foggy Bottom Observatory,"* Ithaca College, Dept. of Physics Seminar, February 2002.

5. *"Thirteen years of quasars and active galaxies at the Foggy Bottom Observatory,"* Colgate University, Dept. of Physics and Astronomy Seminar, January 2002.

6. *"Foggy Bottom Observatory: Fifty years in retrospect,"* Colgate University Department of Physics and Astronomy seminar, February 2000.

7. *"Variability of quasars,"* Williams College Department of Astronomy, April 1999.

8. *"The search for life - why bother? ... and how?!,"* panel discussion participant, Colgate University Division of Natural Sciences and Mathematics Colloquium, February 1999.

9. *"An intense outburst in the quasar BL Lacertae,"* Colgate University Department of Physics and Astronomy seminar, September 1997.

10. *"Multi-frequency studies of variability in quasars and active galaxies,"* Swarthmore College Department of Physics and Astronomy colloquium, November 1996.

11. *"A retrospective look at astronomy research at Foggy Bottom Observatory,"* Colgate University Department of Physics and Astronomy Seminar, October 1996.

12. *"Multi-wavelength campaigns to study the variable emission from quasars,"* Florida Institute of Technology Department of Physics and Astronomy seminar, Melbourne, FL, February 1996.

13. *"Results of recent international multi-wavelength campaigns to study the variable emission from quasars,"* Colgate University Department of Physics and Astronomy seminar, January 1996.

14. *"Quasars and active galactic nuclei across the electromagnetic spectrum,"* Union College Department of Physics seminar, February 1995.

15. *"Quasars and active galactic nuclei across the electromagnetic spectrum,"* Colgate University Department of Physics and Astronomy seminar, January 1995.

16. *"Supernova 1993J — Type IIB or not IIB? That is the question,"* Colgate University Division of Natural Sciences and Mathematics Colloquium, September 1993.

17. *"Supernova 1993J in M 81 — IIP or Not IIP?"* National Radio Astronomy Observatory / Steward Observatory Submillimeter Colloquium, Tucson, AZ, April 1993.

18. *"Astronomy with a small telescope,"* Loras College Physics-Chemistry department seminar, Dubuque, Iowa, American Astronomical Society's Harlow Shapley Visiting Lectureship,March 1993.

19. *"Variability of quasars at radio wavelengths,"* National Radio Astronomy Observatory, Tucson, AZ, January 1993.

20. "Supernovae", Colgate University Department of Physics and Astronomy seminar, April 1992.

21. "*Supernovae,"* Vassar College Physics and Astronomy Department colloquium, Poughkeepsie, NY, April 1992.

22. *"Charge-coupled device (CCD) imaging with small telescopes,"* Heidelberg College science seminar, Tiffin, OH, American Astronomical Society's Harlow Shapley Visiting Lectureship, March 1992.

23. *"Charge-coupled device (CCD) imaging with small telescopes,"* Clarkson University Physics Department colloquium, Potsdam, NY, October 1991.

24. *"The Colgate Observatory: the first 40 years,"* Colgate University Department of Physics and Astronomy seminar, September 1991.

25. *"An introduction to CCD electronic cameras and their use in astronomy,"* Colgate University Department of Physics and Astronomy faculty seminar, February 1991.

26. *"Astronomy with a small telescope and a CCD,"* Rochester Institute of Technology - Center for Imaging Science seminar, Rochester, NY, February 1991.

27. *"Seeing the invisible -- the universe as seen at radio wavelengths,"* State University of New York - College at Fredonia general science seminar, Fredonia, NY, American Astronomical Society's Harlow Shapley Visiting Lectureship, April 1990.

28. *"Electronic images of the universe - utilizing charge-coupled devices (CCD's) in astronomy,"* St. Lawrence University Department of Physics colloquium, Canton, NY, December 1989. [PEW visiting scientist program]

29. *"Electronic images of the universe - utilizing charge-coupled devices (CCD's) in astronomy,"* Williams College Department of Physics and Astronomy colloquium, Williamstown, MA, November 1989.

30. *"The Colgate Observatory charge coupled device (CCD) electronic camera system - observations of supernovae and quasars (and a few pretty pictures),"* Colgate University Department of Physics and Astronomy seminar, September 1989.

31. *"Show graph and show text — a hands-on demonstration of Neil Klepeis' awesome graphing routines,"* Colgate University Department of Physics and Astronomy seminar, September 1989.

32. *"Electronic images of the universe — utilizing charge-coupled devices (CCDs) in astronomy,"* Colgate University Division of Natural Sciences and Mathematics colloquium, April 1989.

33. *"Accretion disks in quasars,"* Colgate University Department of Physics and Astronomy faculty seminar, September 1988.

34. *"Deep in the heart of a quasar,"* Colgate University Department of Physics and Astronomy seminar, September 1988.

35. *"Optical-infrared polarization of quasars,"* NASA-Ames Research Center, Mtn. View, CA, August 1988.

36. *"Observational evidence for stellar and supermassive black holes: Report on the George Mason Supermassive Black Holes workshop,"* Colgate University Department of Physics and Astronomy seminar, October 1986.

37. *"Optical polarimetry of the quasar 3C 345: Evidence for an accretion disk,"* Colgate University Department of Physics and Astronomy seminar, April 1986.

POPULAR LEVEL TALKS

1. *"Winter Wonders: Witnessing the Birth, Life and Death of Stars in the Winter Sky,"* Colgate University, Dept. of Physics and Astronomy Seminar, February 7, 2017.

2. *"Stars Over the Tents: Deciphering the Celestial Movements of the Stars, Moon, & Sun,"* Reunion College, Colgate University Reunion, May 30, 2015.

3. *"AstroTom13's Ultimate Scale Model of the Universe,"* Mohawk Valley Astronomical Society Banquet Speaker, New Hartford, NY, April 11, 2015.

4. *"A universe of photons – II: How does my quasar shine? (More than meets the eye – Synchrotron and inverse Compton readiation),"* Colgate University, Dept. of Physics and Astronomy Seminar, February 17, 2015.

5. *"Winter Wonders: Things You Can Observe in the Winter Sky – Witnessing the Birth, Life and Death of Stars,"* Colgate University, Dept. of Physics and Astronomy Seminar, February 10, 2015.

6. *"A universe of photons – I: Blackbody continuum radiation,"* Colgate University, Dept. of Physics and Astronomy Seminar, September 16, 2014.

7. *"The Mars Curiosity Rover,"* Hamilton Club, Febraury 18, 2013.

8. *"Data visualization in Science,"* Colgate University, lunchtime Summer Journal Club, July 2011.

9. *"Visualizing the sky in the Ho Tung Visualization Laboratory,"* Mohawk Valley Astronomy Society, June 10, 2009.

10. *"Fourteen years of quasars and active galaxies at the Foggy Bottom Observatory,"* Astronomy Section, Rochester Academy of Science RocheStar Fest 2002, July 14, 2002

11. *"Foggy Bottom Observatory: Fifty years in retrospect,"* Colgate University Reunion Weekend, June 2000.

12. Question and answer session for "Hulst, The Planets," Colgate Alumni Club event at Wolf Trap, VA - July 10, 1999

13. *"What we have learned from the Hubble Space Telescope,"* Mohawk Valley Astronomical Society Banquet Speaker, Vernon, NY, March 1999.

14. *"A study of cosmic violence: Quasars and active galaxies,"* popular level public lecture, Alfred University, Alfred, NY, April 26, 1996.

15. *"Astronomy at Colgate Observatory,"* Education Unlimited program "The Earth Below ... The Sky Above: Science Looks at Central New York", Hamilton, NY, April 1996.

16. *"Comets,"* Education Unlimited program "The Earth Below ... The Sky Above: Science Looks at Central New York", Hamilton, NY, April 1996.

17. *"Opening remarks,"* Regional Program for Excellence Ceremony, Mohawk Community College, Utica, NY, September 1994.

18. *"The great comet collision with Jupiter - Did the public understand the events?"* New York State Science Supervisors Association Summer Conference, Colgate University, August 1994.

19. *"Quasars, supernovae and molecules - Astronomy in Tucson,"* Mohawk Valley Astronomical Society, Colgate University, July 1994.

20. *"Asteroids are hazardous to your health,"* Rome Academy of Sciences, Rome, NY, October 1993.

21. *"Supernovae: Witnessing stellar explosions,"* Colgate University Observatory Open House Lecture Series, October 1993.

22. *"Supernovae,"* American Astronomical Society's Harlow Shapley Visiting Lectureship, Loras College, Dubuque, Iowa, March 1993.

23. *"The search for extraterrestrial intelligence,"* American Astronomical Society's Harlow Shapley Visiting Lectureship, Loras College, Dubuque, Iowa, March 1993.

24. *"Astronomy with the Hubble Space Telescope,"* Colgate University Observatory Open House Lecture Series, April 1992.

25. *"The Sun and solar eclipses,"* American Astronomical Society's Harlow Shapley Visiting Lectureship, Heidelberg College, Tiffin, OH, March 1992.

26. *"The search for intelligent life in the universe,"* American Astronomical Society's Harlow Shapley Visiting Lectureship, Heidelberg College, Tiffin, OH, March 1992.

27. *"Travels and travails in the life of an astronomer,"* Mohawk Valley Astronomical Society Banquet Speaker, Clinton, NY, March 1992.

28. *"In the news: Planetary systems around pulsars,"* Colgate University Department of Physics and Astronomy seminar, January 1992.

29. *"Shedding light on a state of darkness: Report on the solar eclipse,"* Colgate University Department of Physics and Astronomy seminar, October 1991.

30. *"The June 1991 solar eclipse from Hawaii,"* Mohawk Valley Astronomical Society, Clinton, NY, August 1991.

31. *"Charge-coupled device (CCD) imaging with small telescopes,"* Mohawk Valley Astronomical Society, Clinton, NY, January 1991.

32. *"The Jovian planets and their satellites,"* Colgate University Observatory Open House Lecture Series, October 1990.

33. *"Quasars, blazars, and other far out objects,"* American Astronomical Society's Harlow Shapley Visiting Lectureship, State University of New York - College at Fredonia, Fredonia, NY, April 1990.

34. *"The search for extraterrestrial intelligence -- How do we know where to look?"* American Astronomical Society's Harlow Shapley Visiting Lectureship, State University of New York - College at Fredonia, Fredonia, NY, April 1990.

35. *"Images of the Universe: electronic photographs from the Colgate Observatory,"* Colgate University Observatory Open House Lecture Series, October 1989.

36. *"Light pollution: Shedding some light (and darkness) on the subject,"* Colgate University Students for Environmental Awareness Lecture Program, May 1989.

37. *"Quasars, blazars, and other far out objects,"* Colgate University Observatory Open House Lecture Series, April 1988.

38. *"Supernovae and mankind: the great supernova of 1987,"* Colgate University Observatory Open House Lecture Series, April 1987.

39. *"Halley's Comet: The new view,"* Colgate University Observatory Open House Lecture Series, October 1986.

40. *"Halley's Comet,"* Colgate University, Elderhostel Program, July 1986 (presented twice).

41. *"Halley's Comet,"* Upstate Medical Center Conference at Colgate University, June 1986.

42. *"Halley's Comet: What did we learn? (Or: Where was it?)"* Colgate University Observatory Open House Lecture Series, May 1986.

43. *"Halley's Comet: A once in a lifetime experience?"* Colgate University Division of Natural Science and Mathematics colloquium, April 1986.

44. *"Survey of the solar system,"* three lectures in Colgate Seminar Series in Rome, NY, March 1986.

45. *"Comets and Comet Halley,"* Hamilton High School, spring 1986

TEACHER AND STUDENT WORKSHOPS

2016 July 28 – Deciphering the Sky [Camp Fiver high school students, in the Ho Tung Visualization Laboratory]

2015 July 2 – Deciphering the Sky [Camp Fiver high school students, in the Ho Tung Visualization Laboratory]

2013 March 2 – Pluto and the Comets: The Controversy About How to Define a Planet [K-12 Teachers]

2012 November 10 – Hands-On Spectroscopy: How Do We Know the Composition of Stars? [K-12 Teachers]

2012 March 24 – Cycles of the Heavens: Appreciating the Observable Motions in the (Night and Day) Sky [K-12 Teachers]

2009 March 28 – Phases of the Moon [K-12 Teachers]

2004 March 20 – Mars: A View from Near and Far [K-12 Teachers]

2002 June 26 – Imaging in Astronomy [Secondary School Teachers]

2001 May 30 – Science Day: Imaging in Astronomy [High School Students]

2000 November 18 – Exploring the Solar System (NASA Missions to the Planets) [Secondary School Teachers]

2000 June 30 - July 2 – Teachers' trip to Washington, D.C. Science Museums [Elementary School Teachers]

2000 May 31 – Science Day: Imaging in Astronomy [High School Students]

1999 November 29 – Expoloring the Solar System (NASA Missions to the Planets) [Elementary School Teachers]

1999 June 3 – Science Day: Imaging in Astronomy [High School Students]

1999 February 6 - 7 – Teachers' trip to New York City Science Museums [Elementary School Teachers]

1998 February 28 – Earth, Sun, Moon [Elementary School Teachers]

RESEARCH STUDENTS - ACADEMIC YEAR:
JUNIOR (Physics 310, 391) / SENIOR (Physics 410, 491) RESEARCH COURSE

Fall 2018
Lekshmi Rajagopal [2019] (Phys 410): *Variable Star Photometry*

Fall 2017
Sydni Bond [2018] (Phys 410): *Variable Stars and Their Light Curves in the BL Lacertae Field*

Spring 2017
Katie Karnes [2017] (Astr 491): *Optical Spectroscopy of the Moon, Jupiter and the Galilean Moons*
Zachary Weaver [2017] (Astr 491): *The June 2016 Optical and Gamma Ray Outburst of 3C 454.3*

Fall 2016
Katie Karnes [2017] (Phys 410): *Latitudinal and Compositional Variations in Lunar Optical Spectra*
Carolyn Morris [2017] (Phys 410): *A Technical Study of the Residual Bulk Image in the FLI PL1001 CCD*
Zachary Weaver [2017] [Phys 410): *The 2016 Outburst of the Blazar 3C 454.3*

Fall 2015
Nicholas Didio [2016] (Phys 410): *Spectral Energy Indices of the Blazar 3C 454.3's 2014-2015 Optical Outburst*
Leah Jenks [2017] (Astr 391): *Microvariability of the Blazar 3C 454.3 During the 2014-2015 Optical Outburst*
Carolyn Morris [2017] (Astr 391): *A Time Series Analysis of Blazar 3C 454.3 During the 2014-2015 Outburst*
Zachary Weaver [2017] (Astr 391): *Exponential Flares of the Blazar 3C 454.3: The 2014-2015 Outburst*

Fall 2014
Claire Freehafer [2015] (Phys 410): *Using Consumer-Grade Digital Single-Lens Reflex Cameas for Asronomical Photometry*
Joshua Reding [2015] (Phys 410): *The Standard Candle: Distance Determination of the Type Ia Supernova SN 1991M in IC 1151*

Fall 2012
Jamis Bruening [2013] (Phys 410): *Analyzing and Interpreting Solar and Planetary Spectra and Atmospheric Absorption Influences*
Micahel Fusco [2013] (Phys 410): *Orbital Period Changes and δ-Scuti Variability in RZ Cassiopeiae*
Katie Iadanza [2013] (Phys 410): *Photometric Analysis of the Transiting Exoplanet System TrES-1*

Fall 2010
Michael T. Lam [2011] (Phys 410): *Time Series Analysis of the Quasar PKS 1749+096*

Fall 2007 - Spring 2008

Peter C. Shively [2008] (Phys 410 and Astr 492): *Further Analysis of Zwicky 1400+0949 Using the ALFALFA Survey*; and *Analysis of the Galactic Environment Surrounding Zwicky 1400+0949 using the ALFALFA Survey*

Fall 2005 - spring 2006

Brian M. Walsh [2006] (Phys 410, also with advisor Martha P. Haynes, Cornell University): *Observations of Zwicky 1400+0949 from the ALFALFA Survey*

Fall 2005

Bryce R. Gadway [2007] (Astr 391): *Micro-Variability and Spectral Index Analysis of the Quasar 3C 454.3*

Fall 2004 / Spring 2005

Brian Walsh [2006] (Phys 309/310): *Observations of Exoplanet TrES-1 Transits*

Spring 2004

Joseph Martin [2004] (Phys 410): *Spectroscopy of Solar System Objects*

Spring 2003

Joseph Converse [2003] (Phys 410, also with advisor Rupali Chandar, Space Telescope Science Institute): *Observational Evidence of Dissolving Star Clusters in M 101*

Emily Fryer [2003] (Phys 410): *The Nature of the Variable Star GSC 3206.00873*

Jeyhan Kartaltepe [2003] (Phys 410): *The Multiple Timescales of Optical Variability of the Blazar 3C 279 During the 2001-2002 Outburst*

Spring 2002

Emily Fryer [2003] (Phys 310): *Determining the Nature of a Variable Star*

Jeyhan Kartaltepe [2003] (Phys 310): *The Thirteen-Year History of Blazar 3C 279 and an Analysis of the 2002 Outburst*

Meredith Tanguay [200]2 (Phys 410): *Optical Variability of the Blazar BL Lac*

Spring 1999

Kelli Corrado [1999] (Phys 410): *The Optical Variability of Quasar 1156+295*

Laurel Brown [1999] (Phys 410): *The Quasar 3C 279: Observations and Variability Analysis*

Spring 1998

Jennifer Heldmann [1998] (Phys 410; also with advisor Dr. Jim Bell, Cornell University): *Mars Surface Mineralogy from Hubble Space Telescope Imaging*

Spring 1997

David H. Berger [1997] (Phys 410): *Core Variability of the Seyfert I Galaxy NGC 5548*

Stacey M. Davis [1997] (Phys 410): *A Model for the Eclipsing Binary Star System RZ Cassiopeiae*

Jonathan Wong [1997] (Phys 410): *Microvariability of BL Lacertae*

Spring 1996

Daniel Pierkowski [1996] (Phys 410): *Multi-Wavelength Observations of the Quasar 3C 454.3*

Stacey M. Davis [1997] (Phys 310): *The Eclipsing Binary Star RZ Cassiopeiae: An Examination of Its Light Curve and Period*
Scott Lacey [1996] (Phys 410): *Narrow Band Imaging of HII Regions in Interacting Spiral Galaxies*

Spring 1995
Scott Lacey [1996] (Phys 310): *Narrow Band Imagery of the Orion Nebula*
David Helms [1995] (Phys 410): *A Study of the Seyfert Galaxy NGC 4151*
Jeff Kern [1995] (Phys 410): *Evidence for a Nearly Constant Component in the BL Lacertae Object 1418+546*
Daniel Pierkowski [1996] (Phys 310; also with advisor Dr. Debra Elmegreen, Vassar College): *Corrugation Effects in Edge-On Spiral Galaxies*

Spring 1994
David Helms [1995] (Phys 310): *Variability of Seyfert Galaxies NGC 4051 and NGC 4151*
Christopher Strom [1994] (Phys 410; also with advisor Dr. Martha Haynes, Cornell University): *The Luminosity Function of the Cluster of Galaxies, A 2634*
Christy Tremonti [1994] (Phys 410): *A Piece of the Puzzle: The Optical Variability of Blazars OJ 287 and 3C 279*

Spring 1993
Chris Strom [1994] (Phys 310; also advised by Physics 310/410 faculty*): Imaging Supernova SN 1993J and the Quasar OJ 287 with Colgate's CCD Electronic Camera*

Spring 1991
Robert E. Curran [1991] (Phys 410): *The Calibration and Reduction of Supernova Images Using IRAF*

Spring 1990
Paul Abell [1990] (Phys 410): *CCD All Sky Photometry of the Star Cluster M 67*
Michael J. Brutvan [1990] (Phys 410): *The Development of a Reduction Scheme for Differential Photometry Data with the Colgate University CCD System*
Jennifer Christensen [1990] (Phys 410): *Photometry Using Charge-Coupled Devices: Detecting Continuum Variability of the Core of the Seyfert Galaxy NGC 5548*

Spring 1989
Stephan Martin [1989] (Phys 410): *The Calibration, Use and Application of a CCD System at the Colgate Observatory*

Spring 1987
Gregory S. Horner [1987] (Phys 410): *CCD Spectroscopy and Computer Control*

RESEARCH STUDENTS - SUMMER

Summer 2019
Miguel de los Santos [2022]: *Optical Variability of Quasars*
Daniel Dougherty [2021]: *Optical Variability of Quasars*
Fairuz Ishraque [2022]: *Optical Variability of Quasars*
Joshn Liberman [2022]: *Optical Variability of Quasars*
John Slater [2022]: *Optical Variability of Quasars*

Summer 2018
Kaitlyn Eckart [2020]: *Optical Variability of Quasars and Stars at the Colgate Observatory*
Rishi Lohar [2021]: *Optical Variability of Quasars and Stars at the Colgate Observatory*
Justin Mailom [2020]: *Optical Variability of Quasars and Stars at the Colgate Observatory*
Lekshmi Rajagopal [2019]: *Optical Variability of Quasars and Stars at the Colgate Observatory*
Eric Roels [2021]: *Long Term Variability of Blazar OJ 287*

Summer 2017
Kaitlyn Eckart [2020]: *Optical Variability of the Blazar OJ 287 at the Colgate Observatory*
Jacob Pilawa [2020]: *The Multi-Decade Optical Light Curve of the Blazar OJ 287*
Ryan Stahlin [2018]: *Optical Variability of Quasars and Stars at the Colgate Observaory*

Summer 2016
Samantha Boni [Bridgewater State Univ 2018]: *The Multi-Decade Optical Light Curve and Microvariabilityh of the Blazar OJ 287*
Katie Chapman [2019]: *The Summer 2016 Outburst of the Blazar 1749+096*
Nicholas Didio [2016]: *Optical Color Index Variability of Quasars*
Alina Sabyr [2019]: *The Multi-Decade Optical Light Curve and Microvariabilityh of the Blazar OJ 287*
Ryan Stahlin [2018: *The Summer 2016 Outburst of the Blazar 1749+096*
Zachary Weaver [2017]: *The June 2016 Optical Flare of the Blazar 3C 454.3*
Saitang Zhang [2019]: *The Multi-Decade Optical Light Curve and Microvariabilityh of the Blazar OJ 287*

Summer 2015
Brian D'Auteuil [2016]: *Historic Light Curve of the Blazar 3C 454.3*
Nicholas Didio [2016]: *The 2014-2015 Optical Outburst of the Blazar 3C 454.3*
Leah Jenks [2017]: *Historic Light Curve of the Blazar 3C 454.3*
Carolyn Morris [2017]: *The 2014-2015 Optical Outburst of the Blazar 3C 454.3*
Caitlyn Rose [Vassar College 2017]: *Historic Light Curve of the Blazar 3C 454.3*
Zachary Weaver [2017]: *The 2014-2015 Optical Outburst of the Blazar 3C 454.3*

Summer 2014
Katie Karnes [2017]: *Optical Variability of the Blazar BL Lacertae During Summer 2014*
Joshua Reding [2015]: *An exploration of Supernova Light Curve Production Methods: Application to SN 1991M in IC 1151*

Angeliese Rilinger [Williams College 2017]: *Optical Variability of the Blazar BL Lacertae During Summer 2014*
Zachary Weaver [2017]: *The Optical and Radio Variability of the Blazar 3C 454.3*
Jovana (Luna) Zagorac [2016]: *The Optical and Radio Variability of the Blazar 3C 454.3*

Summer 2013
Claire Freehafer [2015]: *Optical Variability of Quasars*
Katie Iadanza [2013]: *Photometry of the Transiting Exoplanet TrES-1b*

Summer 2012
Sarah Byer [2015]: *Creating Astronomy Modules for the Ho Tung Visualization Laboratory*
Katie Iadanza [2013]: *Photometric Analysis of the Transiting Exoplanet TrES-1b*
Carolyn Thayer [Wellesley College 2014; Keck Northeast Astronomy Consortium visiting research student]: *Long and Short Term Optical Variability in the BL Lac Object BL Lacertae*
Lily Zucker [Wesleyan University 2014; Keck Northeast Astronomy Consortium visiting research student]: *Long and Short Term Optical Variability in the BL Lac Object BL Lacertae*

Summer 2011
Erica Hopkins [Haverford College 2014; Keck Northeast Astronomy Consortium visiting research student]:*Analysis of the Optical Variability of Quasar PKS 0754+10*
Katie Iadanza [2013] (advisor: Thomas J. Balonek, summer 2011): *Analysis of the Optical Variability of Quasar S5 0716+714*

Summer 2010
Michael T. Lam [2011]: *Time Series Analysis of the Quasar PKS 1749+096*
Phil Patrick [2011]: *Exponential Functions as Models of Quasar Brightness*
Justin Rupert [Vassar College 2012; Keck Northeast Astronomy Consortium visiting research student]: *Optical Variability and Exponential Outbursts of Quasar 3C 345*

Summer 2009
Paul Hegel [Wesleyan University 2010; Keck Northeast Astronomy Consortium visiting research student]: *Analysis of Optical and Radio Outbursts of Blazar PKS 1749+096*
Phil Patrick [2011]: *Analysis of Optical and Radio Outbursts of Blazar PKS 1749+096*
Timothy Taber [Vassar College 2011; Keck Northeast Astronomy Consortium visiting research student]: *Analysis of Optical and Radio Outbursts of Blazar PKS 1749+096*

Summer 2008
Emily Graber [University of Michigan 2011; visiting research student]: *Optical Variability of Quasars*
Michael Lam [2011]: *Optical Variability of the Quasar 1749+096*
Yung Hsien (Caroline) Ng Tam [Williams College 2011; Keck Northeast Astronomy Consortium visiting research student]: *Optical Variability of the Quasar 1749+096*
Trevor Quirk [Siena College 2009; Keck Northeast Astronomy Consortium visiting research

student]: *Using the ALFALFA Survey to Analyze the Poor Group WBL 251 (NRGs076)*

Erin Scott [2009]: *The Universe in HI: The Rich Galaxy Group Zwicky 1400+09 as Seen from ALFALFA*

Summer 2007

Kirsten Levandowski [Wellesley College 2010; Keck Northeast Astronomy Consortium visiting research student]: *Analysis of the Historic Light Curve and 2007 Optical Flare of Quasar 1749+096*

Auralee Morin [RPI 2010; Keck Northeast Astronomy Consortium visiting research student]: *Analysis of the Historic Light Curve and 2007 Optical Flare of Quasar 1749+096*

Summer 2006

Kathyrn Fallows [2008]: *Optical Variability of Blazar 3C 279 and Comparison with X-Ray Variability*

Alyssa Kaercher [2007]: *Observations of Optically Variable Quasras*

Talia Sepersky [Wellesley College 2008; Keck Northeast Astronomy Consortium visiting research student]: *Optical Variability of the Blazar 1510-08 and Comparison to the X-Ray*

Peter C. Shively [2008]: *Optical Monitoring of Quasar 3C 345 and Exponential Outbursts*

Summer 2005

Christine Forsyth [Bryn Mawr College 2007; Keck Northeast Astronomy Consortium visiting research student]: *Quasar Variability – The Unprecedented Outburst in 3C 454.3*

Bryce Gadway [2007]: *Quasar Variability at the Colgate Foggy Bottom Observatory*

Brendan Mullan [2007]: *Analyzing the Optical Variability of the Blazar 3C 454.3*

Stephanie Wortel [2006]: *The 2005 Outburst of Quasar 3C 454.3 Compared with Prior Optical Variability*

Summer 2004

Patricia Hutchins [2005]: *Visual Spectroscopy of Jupiter and the Galilean Moons*

Bradford Melius [2006]: *Visual Spectroscopy of Bright Stars and Nebulae*

Rebecca Mickol [2007]: *Visual Spectroscopy and its Application to the Moon*

Styephanie Wortel [2006]: *Looking into the Past: Extending the Known Variability of Quasars 3C 273 and 3C 279*

Summer 2003

Cynthia Castellon [2005]: *Optical Variability fo the Quasar CTA 102*

Joseph Gangestad [Williams College 2006; Keck Northeast Astronomy Consortium visiting research student]: *Bright Quasar 3C 273 at Optical and X-ray Wavelengths*

Mehul Malik [2006]: *Quasar 0736+017: Variability in the R Filter*

Manette Sandor [Vassar College 2004; Keck Northeast Astronomy Consortium visiting research student]: *The Optical Variability of BL Lacertae and Select Nearby Stars*

Summer 2002

Peter Forshay [Haverford College 2005; Keck Northeast Astronomy Consortium visiting research student]: *A Study of the Quasar 1510-08 and the Colgate Data Reduction Method*

Jeyhan Kartaltepe [2003]: *The Optical Variability of the Quasar 3C 279 During the 2001-2002 Outburst*

Terry-Ann Suer [Williams College 2005; Keck Northeast Astronomy Consortium visiting research student]: *Optical Variability of the Quasar 3C 273*

Summer 2001

Joseph Converse [2003]: *Preparing Observational Tools for Future Use*

Emily Fryer [2003]: *Study of Variable Stars in the BL Lacertae Field*

Jeyhan Kartaltepe [2003]: *Optical Variability of the Quasar 3C 279*

Joseph Martin [2004]: *Optical Variability of the Blazar 1510-08*

Miriam Parnes [Barnard College 2003; New York Science Education Program visiting research student]: *Understanding Observational Astronomy*

Claudine Reith [Middlebury College 2003; Keck Northeast Astronomy Consortium visiting research student]: *Optical Variability of the Blazar 1156+295*

Summer 2000

Michelle Caler [2002]: *Variable Stars in the BL Lacertae Field*

Francesca D'Arcangelo [Wellesley College 2003; Keck Northeast Astronomy Consortium visiting research student]: *Optical and Radio History of the Quasar CTA 102*

Kathleen Gibbons [Williams College 2003; Keck Northeast Astronomy Consortium visiting research student]: *Optical Monitoring and Analysis of the Optically Violent Variable Quasar 3C 345*

Jeyhan Kartaltepe [2003]: *1989-2000 Optical Light Curve for 3C 279 and a Possible X-ray Correlation*

Summer 1999

Theresa J. Brandt [Vassar College 2002; Keck Northeast Astronomy Consortium visiting research student]: *AO 0235+164: Optical Fluctuations and Radio Correlations*

Mariah Lyndaker [2001]: *Optical Variability of the Quasar 3C 279*

Jeremy Smith [Hamilton College 2001; New York Science Education Program visiting research student]: *Optical Variability of the Quasar 1156+295*

Summer 1998

Stacey Benson [St. Lawrence University 2001; New York State Pew Consortium visiting research student]: *Optical Variations in the Quasar CTA 102*

Sandra Black [2001]: *Observations of Fluctuating Quasars*

Andrew N. Hock [2000]: *Optical Variability of the Quasar 1156+295*

Elizabeth J. McGrath [Vassar College 2001; Keck Northeast Astronomy Consortium visiting research student]: *The Blazar 0235+164: A Study of the Correlation between Optical and Radio Variations*

Carlos Montoya [2001] [Colgate Science / Mathematics Initiative summer research program]: *Observations and Analysis of Quasar Optical Variability*

Summer 1997

Eli Beckerman [Wesleyan University 1999; Keck Northeast Astronomy Consortium visiting research student]: *Colgate University's Optical Monitoring of Quasars: CTA 102*

Stacey M. Davis [1997]: *Peculiar Fluctuations in the Light Curve of the Eclipsing Binary Star RZ Cassiopeiae*

Carol Finn [1999]: *Optical Variability of the Quasar 3C 454.3 and Calibration of the Quasar CTA 102 Field*

Kathryn Whitman [Cornell University 1900; New York State Pew Consortium visiting research student]: *The Microvariability of BL Lacertae*

Alison F. Schirmer [Swarthmore College 1998]: *Optical Variability of the BL Lacertae Object 1418+546*

Summer 1996

Laura Brenneman [Williams College 1999; Keck Northeast Astronomy Consortium visiting research student program]: *Determining Orbital Data and Parallax Through Asteroid Astrometry*

Kiana Cole [1999] [Colgate Science / Mathematics Initiative summer research program]: *Finding an Asteroid's Orbit*

Stacey M. Davis [1997]: RZ Cassiopeiae: *Evidence for Hot Spots on the Surface of a Star*

Alison F. Schirmer [1998] [Swarthmore College; Keck Northeast Astronomy Consortium visiting research student]: *Optical Variability of the BL Lac Object 1418+546*

Summer 1995

Baquera Haidri [Cornell University 1998; New York State Pew Consortium visiting research student]: *Asteroid Astrometry*

Christina Reynolds [Williams College 1998; Keck Northeast Astronomy Consortium visiting research student]: *Astrometry of Newly Discovered Asteroids*

Christy Tremonti [1994]: *Scripts for Automated Calibration and Reduction of Colgate Observatory CCD Images*

Summer 1994

Lai Man Lee [1997] [Colgate Science / Mathematics Initiative summer research program]: *The Laughing Rock: Asteroid 1991 HA*

Makiko Sakai [Bryn Mawr College; Keck Northeast Astronomy Consortium visiting research student]: *Out from Under the Dust*

Nicole Silvestri [Union College 1995; American Astronomical Society - Research Experiences for Undergraduates program]: *Optical Variability of the Extragalactic Supernova SN 1993J in the Spiral Galaxy M 81*

Christy Tremonti [1994]: *Life in the Fast Lane: The Microvariability of Blazar OJ 287*

Summer 1993

Richard Bell [1996] [Colgate Science / Mathematics Initiative summer research program]: *Astronomical Imaging and Image Processing*

Jason de Luce [Williams College 1996; Keck Northeast Astronomy Consortium visiting research student]: *Observations of Optical Emission Surrounding NGC 3169 [Burrell Schmidt images]*

Nicole Silvestri [Union College 1995; New York State Pew Consortium visiting research student]: *Optical Light Curves of the Extragalactic Supernova SN 1993J in the Spiral Galaxy M 81*

Jennifer Koch [St. Lawrence University 1995; New York State Pew Consortium visiting research student]: *Optical Light Curves of the Extragalactic Supernova SN 1993J in the Spiral Galaxy M 81*

Summer 1992

Sherri Godlin [Vassar College 1994; Keck Northeast Astronomy Consortium visiting research student]: *Calibration and Photometric Study of Quasar 3C 279 CCD Images*

Jennifer Huergo [1993]: *Classroom Applications of CCD Spectroscopy*

Manuel Gonzales [1995] [Colgate Science / Mathematics Initiative summer research program]: *Image Processing: A Career to Look At - A Tool for the Future*

Robin Pramanand [1995] [Colgate Science / Mathematics Initiative summer research program]: *Learning How to Image Process in Nine Weeks*

Robin Tripoli [Cornell University 1994; New York State Pew Consortium visiting research student]: *Superscripts for the Calibration of Colgate CCD Images*

Summer 1991

David Bergeron [Middlebury College 1993; Keck Northeast Astronomy Consortium visiting research student]: *Optical Photometry of the BL Lacertae Type Object BL Lacertae*

Mohammad Ahsan Jameel [Hamilton College 1993; New York State Pew Consortium visiting research student]: *VRI Observations of Supernova SN 1991T in NGC 4527*

Ritu Verma [Middlebury College 1993; Keck Northeast Astronomy Consortium visiting research student]: *Determining Parallax for Nearby Asteroids*

Summer 1990

Jennifer Christensen [1990]: *Continuum Variations in the Core of the Seyfert Galaxy NGC 5548*

Summer 1989

Paul Abell [1990]: *Quasar CCD Photometry*

Neil Klepeis [1990]: *Introductory Astronomy Laboratory Development*

Harri Latvakoski [1990]: *Quasar CCD Photometry*

Stephan Martin [1989]: *CCD Observations of Supernovae SN 1989A and SN 1989B*

Summer 1988

Paul Abell [1990]: *Quasar Variability*

Michael Brutvan [1990]: *Data Processing with the CCD Electronic Camera*

Jennifer Christensen [1990]: *Radio (and Optical) Photometry of Quasars*

Stephan Martin [1989]: *The Development of a CCD Imaging System as a Teaching Tool for Introductory-Level Astronomy*

Jennifer Pearson [Agnes Scott College 1991]: *Optical CCD Observations of Quasars*

Summer 1987

Kelli Spiess [1989]: *Photometric Observations with the Colgate Observatory 16-inch Telescope*

David Grimley [1988]: *Photometric Observations with the Colgate Observatory 16-inch Telescope*

Summer 1986

Gregory S. Horner [1987]: *Quasar Variability - Radio and Optical Variability*

HIGH SCHOOL STUDENT RESEARCH PARTICIPATION
(BOCES REGIONAL PROGRAM OF EXCELLENCE)

Danielle Schaff [Oriskany Central School] (1994-95 academic year): *Color Imaging in Astronomy*

Louis Silvestri [Whitesboro High School] (summer 1994): *Asteroid Astrometry and Photometry*

Shannon Leonard [Dolgeville Central School) (1993-94 academic year): *Asteroid Astrometry*

Heather Sadlon [Mohawk Central School] (1991-92 academic year): *Displaying Astronomical Images*

Scott Wolak [New York Mills High School] (1990-91 academic year): *CCD Observations of Variable Quasars*

Jill Maloney [Vernon-Verona-Sherrill City School] (summer 1990): *CCD Observations of Variable Quasars*

Michael Malstrom [Canastota Central School] (1987-88 academic year): *A Pascal Program to Calculate Local Sidereal Time*

Gary Meadows [Rome Free Academy] (summer 1987): *Variable Star Photometry*

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