

# G. GRANT WILLIAMS

MMT Observatory  
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## EDUCATION

**Ph.D.**, Physics, August 2000  
Clemson University, Clemson, SC  
Advisor: Dr. Dieter Hartmann  
Dissertation Title: *Early-Time Observations of Gamma-Ray Burst Error Boxes with the Livermore Optical Transient Imaging System*

**M.S.**, Physics, December 1996  
Clemson University, Clemson, SC  
Advisor: Dr. Miguel Larsen  
Thesis Title: *Design and Implementation of a VHF Meteor Radar*

**B.S.**, Physics, Math Minor, May 1994  
State University of New York at Buffalo, Buffalo, NY  
Senior Project: *Telescope Mount Upgrade*

## RESEARCH INTERESTS

My research focuses on the study of very evolved high mass stars and supernovae. The objective of this work is to improve our understanding of the characteristics and importance of asymmetries in stellar explosions. This is achieved through observations that probe the three-dimensional (3-D) nature of massive stars before and after they explode. In recent years, evidence has grown to suggest that nearly all supernovae exhibit departures from spherical symmetry. These results, together with advances in computing power that have enabled full 3-D modeling, are exposing the possibility that asymmetries are not just an observable consequence of a supernova, but may in fact be a necessity of the explosion mechanism itself. I'm currently the PI of the Supernova Spectropolarimetry Project (SNSPOL), a spectropolarimetric survey of all types of core collapse and thermonuclear supernovae meant to identify and characterize aspherical explosions. I also have a strong interest in instrumentation and, as such, support efforts related to instrumentation at the MMT and other Steward Observatory facilities.

## EMPLOYMENT

**Director**, January 2011 - present  
MMT Observatory  
Manage the safe, efficient and successful operation of the 6.5-m MMT Telescope. Draft the annual Program Plan and Budget that describes technical accomplishments, future goals and the organizational staffing plan. Address day-to-day operations and management issues. Implement the Observatory's strategic plan. Interact with the user community and instrument

PIs. Exchange information and operations ideas with other observatories. Represent the Observatory to the media, the public, and the scientific community.

**Associate Director**, October 2007 - December 2010

MMT Observatory

Advised the Director on both management and technical issues. Assisted with the annual Program Plan and Budget. Participated in allocating and scheduling telescope time. Continued the duties of the Technical Coordinator.

**Associate Staff Scientist/Technical Coordinator**, July 2005 - September 2007

MMT Observatory

Worked with senior staff to prioritize Observatory technical activities. Monitored the progress of all engineering projects and reported the status to the Director. Continued to support facility instruments.

**Assistant Staff Scientist**, March 2004 - June 2005

MMT Observatory

Trained and supported visiting astronomers. Performed routine calibrations of the facility instruments. Analyzed the performance of the telescope and instruments. Implemented procedures and practices for optimizing the overall operation of the observatory.

**Firestone Fellow**, September 2002 - March 2004

Smithsonian Astrophysical Observatory

Supported the commissioning and optimization of a wide field corrector/ADC, a wavefront sensor, two fiber fed bench spectrographs (Hectospec and Hectochelle) and a wide field imager (Megacam) for the MMT. Studied the effects of the MMT thermal environment on the quality of its data products. Characterized the performance of the MMT primary mirror ventilation system.

**Postdoctoral Research Associate**, September 2000 - August 2002

Steward Observatory

Coordinated the assembly, characterization, and implementation of a prime focus imager for the Steward Observatory 90-inch Bok telescope. Developed the instrument control software. Drafted a users manual, a technical manual, and a web page.

**Research Assistant**, January 1997 - August 2000

Clemson University, Astronomy

Reduced, analyzed, and interpreted images from optical telescopes. Evaluated and modified the operational strategy for two robotic telescopes. Performed upgrades and maintenance of telescope hardware and CCD cameras.

**Planetarium Operator**, August 1997 - August 2000

Clemson University

Developed planetarium and slide shows and presented them to 25 grade school students each week.

**Research Assistant**, May 1996 - December 1996

Clemson University, Atmospheric Physics

Helped to design and build a meteor radar antenna and receivers.

**Teaching Assistant**, August 1994 - May 1996

Clemson University

Taught an introductory astronomy laboratory for 90 students per semester. Revised the laboratory manual to incorporate planetarium-like software.

**Engineering Assistant**, May 1989 - August 1994 (Academic Breaks)

Rome Laboratory, Airborne Radar Division

Developed and tested phased array radar systems.

**Engineering Assistant**, June 1988 - August 1988

Rome Laboratory, Optical Engineering Division

Implemented software control of segmented mirrors.

## HONORS AND AWARDS

**Firestone Fellowship**, 2002

Smithsonian Astrophysical Observatory, CfA

**William F. Lucas/San Diego Astronomy Association Junior Faculty Award**, 2002

Steward Observatory, University of Arizona

**Outstanding Teaching Assistant**, 1996

Department of Physics and Astronomy, Clemson University

**Teaching Assistant Trainer**, 1996

Department of Physics and Astronomy, Clemson University

**Air Force Performance Award**, 1991

Airborne Radar Division, Rome Laboratory

## PROFESSIONAL SERVICES

**Co-Organizer**, 2015

Steward Observatory Internal Symposium

**Co-Organizer**, 2014

Steward Observatory Internal Symposium

**Chair**, 2014

Fred Lawrence Whipple Observatory Staffing Review

**Panelist**, 2013

NSF Major Research Instrumentation Review

**Committee Member**, 2012/2013

NOAO Observatory Visiting Committee

**Panelist**, 2010

NSF Advanced Technology and Instrumentation Review

**Committee Member**, 2006

Steward Observatory Internal Review of the MMT Advanced Echelle Spectrograph

**Observatory Representative**, 2005

MMT Magellan Infrared Spectrograph Conceptual Design Review

**Member**

Sigma Pi Sigma National Physics Honor Society

**Member**

American Astronomical Society

## Member

Astronomical Society of the Pacific

## INVITED SCHOLARLY PRESENTATIONS

*Probing the Three Dimensional Nature of Supernova Explosions; Results from the Supernova Spectropolarimetry Project (SNSPOL)*, April 14, 2016

Clemson University Physics and Astronomy Colloquium, Clemson, SC

*Probing the Three Dimensional Nature of Supernova Explosions; Results from the Supernova Spectropolarimetry Project (SNSPOL)*, October 2, 2015

San Diego State University Astronomy Colloquium, San Diego, CA

*MMT Observatory: A Brief Update*, June 6, 2014

Harvard-Smithsonian Center for Astrophysics Invited Talk, Cambridge, MA

*MMT Observatory: The Director's Perspective*, May 20, 2011

Harvard-Smithsonian Center for Astrophysics Invited Talk, Cambridge, MA

## SUBMITTED SCHOLARLY PRESENTATIONS

*The 6.5-m MMT Telescope: Status and Plans for the Future*, June 27, 2016

SPIE Astronomical Telescopes and Instrumentation, Edinburgh, Scotland  
Submitted

*Whipping Supernovae Into Shape; The Supernova Spectropolarimetry Project (SNSPOL)*,  
March 4, 2016

Steward Observatory Internal Symposium, Tucson, AZ

*Probing the Three Dimensional Nature of Supernovae; Results from the Supernova Spectropolarimetry Project (SNSPOL)*, June 3, 2015

F. O. E. Fifty-One Erg Conference Talk, Raleigh, NC

*SNSPOL: Supernovae are not Spherical Cows*, February 20, 2015

Steward Observatory Internal Symposium, Tucson, AZ

*MMT Observatory Strategic Plan*, February 17, 2015

Steward Observers' Lunch Talk, Tucson, AZ

*MMT Observatory Status Update*, October 30, 2012

Steward Observers' Lunch Talk, Tucson, AZ

*Evolution of the Asymmetric Type II In SN 2010jl*, April 3, 2011

NOAO Friday Science Lunch Talk, Tucson, AZ

## COMMUNITY PRESENTATIONS

*Probing the Three Dimensional Nature of Supernova Explosions; Results from the Supernova Spectropolarimetry Project (SNSPOL)*, May 10, 2016

Sonoran Astronomical Society Presentation, Green Valley, AZ

*The Giant Magellan Telescope: The Next Big Thing in Ground Based Astronomy*, January 14, 2015

FLWO New Vistas in Astronomy Public Lecture Series, Green Valley, AZ

*Supernovae; In Any Way, Shape or Form*, February 12, 2014

FLWO New Vistas in Astronomy Public Lecture Series, Green Valley, AZ

*Supernovae; In Any Way, Shape or Form*, March 14, 2014

Huachuca Astronomy Club, Sierra Vista, AZ

*The Science and Technology of the 6.5-m MMT Telescope*, May 11, 2012

Smithsonian Journeys Public Lecture and MMT Tour, Tucson, AZ

*The Evolution of Aspherical Supernova Explosions*, February 28, 2012

FLWO New Vistas in Astronomy Public Lecture Series, Green Valley, AZ

*The Science and Technology of the 6.5-m MMT Telescope*, January 10, 2012

Sonoran Astronomical Society Presentation, Green Valley, AZ

*Active and Adaptive Optics at the MMT*, January 26, 2011

FLWO New Vistas in Astronomy Public Lecture Series, Green Valley, AZ

## GRANTS AND CONTRACTS

**PI**, Co-PIs: None

*Operation, Maintenance, and Development of the MMT Observatory on Mt. Hopkins*

Effort: 4.5 academic months, 2.0 summer months

July 1, 2015 - June 30, 2016

Smithsonian Astrophysical Observatory

\$1,137,392

**PI**, Co-PIs: P. Milne, N. Smith, P. Smith, D. Leonard (SDSU), J. Hoffman (DU)

*Collaborative Research: An Investigation of the Aspherical Evolution of Supernovae*

Effort: 1.0 summer months

September 1, 2012 - August 30, 2015

National Science Foundation

\$400,467

**Co-PI**, PI: M. Hart, Co-PIs: S. Ammons

*Science Commissioning of the MMT's Ground-Layer Adaptive Optics System*

Effort: 0.45 academic months (No salary for G. Williams)

July 1, 2011 - June 30, 2013

National Science Foundation

\$394,812

## COLLABORATORS

Akerlof, C. W. (Michigan), Allen, L. (NOAO), Andrews, J. E. (Arizona), Ben-Ami, S. (Weizmann Inst.), Berger, E. (CfA), Bersier, D. (Liverpool JMU), Bilinski, C. (Arizona), Bloom, J. S. (UC Berkeley), Brocious, D. K. (SAO), Butler, N. R. (ASU), Cano, Z. (Iceland), Cenko, S. B. (NASA/GSFC), Chambers, K. (UH Manoa), Chornock, R. (Ohio), Christian, P. (UC Berkeley), Clay, N. R. (Liverpool JMU), Clubb, K. I. (UC Berkeley), Corbally, C. J. (Vatican Obs.), Cucchiara, A. (Lick), Davis, D. R. (PSI), Del Castillo, E. A. (AdC Consulting), Della Valle, M. (INAF), Dessart, L. (Nice), Diaz Castro, J. (Inst. de Astro. de Canarias), Duong, N. (SDSU), Falco, E. E. (SAO), Filippenko, A. V. (UC Berkeley), Flatland, K. (SDSU), Fox, D. B. (PSU), Fox, Ori D. (UC Berkeley), Gabor, P. (Vatican Obs.), Gal-Yam, A. (Weizmann Inst.), Gibson, J. D. (MMTO), Golenetskii, S. (Ioffe Physical Technical Inst.), Gomboc, A. (Ljubljana), Gonzalez, L. (SDSU), Graham, M. L. (UC Berkeley), Green, R. F. (Arizona), Guidorzi, C. (Ferrara), Haberl, F. (MPI), Hall, J. C. (Lowell Obs.), Harrison, R.

(Liverpool JMU), Hartmann, D. H. (Clemson), Hatzidimitriou, D. (Athens), Henden, A. (AAVSO), Henze, M. (MPI), Hoffman, J. L. (Denver), Hofmann, F. (MPI), Hornoch, K. (Ondrejov), Horst, J. C. (SDSU), Huk, L. N. (Denver), Itagaki, K. (Itagaki Astronomical Obs.), Jannuzi, B. (Arizona), Japelj, J. (Ljubljana), Kabashima, F. (Miyaki-Argenteus Obs.), Kann, D. A. (Tautenburg), Kasliwal, M. M. (CalTech), Kelly, P. L. (UC Berkeley), Khandrika, H. G. (SDSU), Kobayashi, S. (Liverpool JMU), Kopac, D. (Ljubljana), Koppenhoefer, J. (MPI), Kulkarni, S. R. (CalTech), Larsen, M. (Clemson), Larson, S. M. (Arizona), Lee, C. H. (National Central University, Taiwan), Leising, M. D. (Clemson), Leonard, D. C. (SDSU), Levan, A. J. (Warwick), Li, W. (UC Berkeley), Magnier, E. (UH Manoa), Maguire, K. (ESO), Margutti, R. (CfA), Mauerhan, J. C. (UC Berkeley), Melandri, A. (INAF/Brera Astro. Obs.), Mighell, K. J. (NOAO), Miller, A. A. (UC Berkeley), Milne, P. A. (Arizona), Monrad, C. K. (Monrad Engin.), Morgan, A. N. (UC Berkeley), Mottram, C. J. (Liverpool JMU), Mundell, C. G. (Liverpool JMU), Nance, C. (McDonald Obs.), Nishiyama, K. (Miyaki-Argenteus Obs.), Nugent, P. (UC Berkeley), O'Brien, P. T. (Leicester), Pal'shin, V. (Ioffe Physical Technical Inst.), Perley, D. A. (Copenhagen), Pietsch, W. (MPI), Porter, A. L. (Clemson), Porter, D. (MMTO), Prochaska, J. X. (UCSC), Rachubo, A. (SDSU), Riffeser, A. (Univ. Obs. Munich), Rujopakarn, W. (Arizona), Rykoff, E. S. (UCSB), Sala, G. (UPC), Schmidt, G. (NSF), Seitz, S. (MPI), Shankland, P. D. (USNO), Silverman, Jeffrey M. (UT Austin), Smith, N. (Arizona), Smith, P. S. (Arizona), Steele, I. A. (Liverpool JMU), Sullivan, Mark (Southampton), Svinkin, D. (IPTI), Tanvir, N. R. (Leicester), Trebisky, T. (MMTO), Updike, A. C. (Roger Williams Univ.), Virgili, F. J. (Liverpool JMU), Walker, C. E. (NOAO), Wheeler, J. C. (UT Austin), Xing, G. (Xingming Obs.), Xu, D. (Weizmann Institute), Yuan, F. (Michigan), Zaritsky, D. F. (Arizona), Zheng, W. (UC Berkeley),

## REFEREED PUBLICATIONS

\* Indicates publications based substantially on work completed as a graduate student.

*Spectropolarimetry of SN 2011dh in M51: geometric insights on a Type IIb supernova progenitor and explosion*

J. C. Mauerhan, G. G. Williams, D. C. Leonard, P. S. Smith, A. V. Filippenko, N. Smith, J. L. Hoffman, L. Huk, K. I. Clubb, J. M. Silverman, S. B. Cenko, P. Milne, A. Gal-Yam, and S. Ben-Ami, MNRAS453, 4467, (2015)

*Constraints on Type II<sub>n</sub> Supernova Progenitor Outbursts from the Lick Observatory Supernova Search*

C. Bilinski, N. Smith, W. Li, G. G. Williams, W. Zheng, and A. V. Filippenko, MNRAS 450, 246, (2015)

*PTF11iqb: Cool Supergiant Mass-Loss that Bridges the Gap Between Type II<sub>n</sub> and Normal Supernovae*

N. Smith, J. C. Mauerhan, S. B. Cenko, M. M. Kasliwal, J. M. Silverman, A. V. Filippenko, A. Gal-Yam, K. I. Clubb, M. L. Graham, D. C. Leonard, J. C. Horst, G. G. Williams, J. E. Andrews, S. R. Kulkarni, P. Nugent, M. Sullivan, K. Maguire, D. Xu, and S. Ben-Ami, MNRAS 449, 1876, (2015)

*Multi-Epoch Spectropolarimetry of SN 2009ip: Direct Evidence for Aspherical Circumstellar Material*

J. Mauerhan, G. G. Williams, N. Smith, P. S. Smith, A. V. Filippenko, J. L. Hoffman, P. Milne, D. C. Leonard, K. I. Clubb, O. D. Fox, and P. L. Kelly, MNRAS 442, 1166, (2014)

*GRB 091024A and the Nature of Ultra-Long Gamma-Ray Bursts*

F. J. Virgili, C. G. Mundell, V. Pal'shin, C. Guidorzi, R. Margutti, A. Melandri, R. Harrison, S. Kobayashi, R. Chornock, A. Henden, A. C. Updike, S. B. Cenko, N. R. Tanvir, I. A. Steele, A. Cucchiara, A. Gomboc, A. Levan, Z. Cano, C. J. Mottram, N. R. Clay, D. F. Bersier, D. Kopač, J. Japelj, A. V. Filippenko, W. Li, D. Svinkin, S. Golenetskii, D. H. Hartmann, P. A. Milne, G. Williams, P. T. O'Brien, D. B. Fox, and E. Berger, ApJ 778, 54, (2013)

*Supersoft X-rays Reveal a Classical Nova in the M31 Globular Cluster Bol 126*

M. Henze, W. Pietsch, F. Haberl, M. Della Valle, A. Riffeser, G. Sala, D. Hatzidimitriou, F. Hofmann, D. H. Hartmann, J. Koppenhoefer, S. Seitz, G. G. Williams, K. Hornoch, K. Itagaki, F. Kabashima, K. Nishiyama, G. Xing, C. H. Lee, E. Magnier, and K. Chambers, A&A 549, A120, (2013)

*Monster in the Dark: The Ultraluminous GRB 080607 and Its Dusty Environment*

D. A. Perley, A. N. Morgan, A. Updike, F. Yuan, C. W. Akerlof, A. A. Miller, J. S. Bloom, S. B. Cenko, W. Li, A. V. Filippenko, J. X. Prochaska, D. A. Kann, N. R. Tanvir, A. J. Levan, N. R. Butler, P. Christian, D. H. Hartmann, P. Milne, E. S. Rykoff, W. Rujopakarn, J. C. Wheeler, and G. G. Williams, AJ 141, 36, (2011)

*Evidence for Supernova-Synthesized Dust from the Rising Afterglow of GRB 071025 at  $z \sim 5$*

D. A. Perley, J. S. Bloom, C. R. Klein, S. Covino, T. Minezaki, P. Woźniak, W. T. Vestrand, G. G. Williams, P. Milne, N. R. Butler, A. C. Updike, T. Krühler, P. Afonso, A. Antonelli, L. Cowie, P. Ferrero, J. Greiner, D. H. Hartmann, Y. Kakazu, A. Küpcü Yoldaş, A. N. Morgan, P. A. Price, J. X. Prochaska, and Y. Yoshii, MNRAS 406, 2473, (2010)

*From Shock Breakout to Peak and Beyond: Extensive Panchromatic Observations of the Type Ib Supernova 2008D Associated with Swift X-ray Transient 080109*

M. Modjaz, W. Li, N. Butler, R. Chornock, D. Perley, S. Blondin, J. S. Bloom, A. V. Filippenko, R. P. Kirshner, D. Kocevski, D. Poznanski, M. Hicken, R. J. Foley, G. S. Stringfellow, P. Berlind, D. Barrado y Navascues, C. H. Blake, H. Bouy, W. R. Brown, P. Challis, H. Chen, W. H. de Vries, P. Dufour, E. Falco, A. Friedman, M. Ganeshalingam, P. Garnavich, B. Holden, G. Illingworth, N. Lee, J. Liebert, G. H. Marion, S. S. Olivier, J. X. Prochaska, J. M. Silverman, N. Smith, D. Starr, T. N. Steele, A. Stockton, G. G. Williams, and W. M. Wood-Vasey, *ApJ* 702, 226, (2009)

*Synchronous Optical and Radio Polarization Variability in the Blazar OJ287*

F. D. D'arcangelo, A. P. Marscher, S. G. Jorstad, P. S. Smith, V. M. Larionov, V. A. Hagen-Thorn, G. G. Williams, W. K. Gear, D. P. Clemens, D. Sarcia, A. Grabau, E. V. Tollestrup, M. W. Buie, B. Taylor, and E. Dunham, *ApJ* 697, 985, (2009)

*The First Two Transient Supersoft X-ray Sources in M31 Globular Clusters and the Connection to Classical Novae*

M. Henze, W. Pietsch, F. Haberl, G. Sala, R. Quimby, M. Hernanz, M. Della Valle, P. Milne, G. G. Williams, V. Burwitz, J. Greiner, H. Stiele, D. H. Hartmann, A. K. H. Kong, and K. Hornoch, *A&A* 500, 769, (2009)

*The Very Short Supersoft X-ray State of the Classical Nova M31N 2007-11a*

M. Henze, W. Pietsch, G. Sala, M. Della Valle, M. Hernanz, J. Greiner, V. Burwitz, M. J. Freyberg, F. Haberl, D. H. Hartmann, P. Milne, and G. G. Williams, *A&A* 498, L13, (2009)

*The Rapidly Flaring Afterglow of the Very Bright and Energetic GRB 070125*

A. C. Updike, J. B. Haislip, M. C. Nysewander, A. S. Fruchter, D. A. Kann, S. Klose, P. A. Milne, G. G. Williams, W. Zheng, C. W. Hergenrother, J. X. Prochaska, J. P. Halpern, N. Mirabal, J. R. Thorstensen, A. J. van der Horst, R. L. C. Starling, J. L. Racusin, D. N. Burrows, N. P. M. Kuin, P. W. A. Roming, E. Bellm, K. Hurley, W. Li, A. V. Filippenko, C. Blake, D. Starr, E. E. Falco, W. R. Brown, X. Dai, J. Deng, L. Xin, Y. Qiu, J. Wei, Y. Urata, D. Nanni, E. Maiorano, E. Palazzi, G. Greco, C. Bartolini, A. Guarnieri, A. Piccioni, G. Pizzichini, F. Terra, K. Misra, B. C. Bhatt, G. C. Anupama, X. Fan, L. Jiang, R. A. M. J. Wijers, D. E. Reichart, H. A. Eid, G. Bryngelson, J. Puls, R. C. Goldthwaite, and D. H. Hartmann, *ApJ* 685, 361, (2008)

*The Inner Jet of an Active Galactic Nucleus as Revealed by a Radio-to- $\gamma$ -Ray Outburst*

A. P. Marscher, S. G. Jorstad, F. D. D'Arcangelo, P. S. Smith, G. G. Williams, V. M. Larionov, H. Oh, A. R. Olmstead, M. F. Aller, H. D. Aller, I. M. McHardy, A. Lähteenmäki, M. Tornikoski, E. Valtaoja, V. A. Hagen-Thorn, E. N. Kopatskaya, W. K. Gear, G. Tosti, O. Kurtanidze, M. Nikolashvili, L. Sigua, H. R. Miller, and W. T. Ryle, *Nature* 452, 966, (2008)

*Highly Polarized Optically Selected BL Lacertae Objects*

P. S. Smith, G. G. Williams, G. D. Schmidt, A. M. Diamond-Stanic, and D. L. Means, *ApJ* 663, 118, (2007)

*Rapid Multiwaveband Polarization Variability in the Quasar PKS 0420-014: Optical Emission from the Compact Radio Jet*

F. D. D'Arcangelo, A. P. Marscher, S. G. Jorstad, P. S. Smith, V. M. Larionov, V. A. Hagen-Thorn, E. N. Kopatskaya, G. G. Williams, and W. K. Gear, *ApJ* 659, L107, (2007)



*Late Light Curves of the Normal Type Ia Supernovae*

J. C. Lair, M. D. Leising, P. A. Milne, and G. G. Williams, AJ 132, 2024, (2006)

*Early Time Chromatic Variations in the Wind-swept Medium of GRB 021211 and the Faintness of Its Afterglow*

M. C. Nysewander, D. E. Reichart, H.-S. Park, G. G. Williams, K. Kinugasa, D. Q. Lamb, A. A. Henden, S. Klose, T. Kato, A. Harper, H. Yamaoka, C. Laws, K. Torii, D. G. York, J. C. Barentine, J. Dembicky, R. J. McMillan, J. A. Moran, D. H. Hartmann, B. Ketzbeck, M. B. Bayliss, J. W. Bartelme, J. A. Crain, A. C. Foster, M. Schwartz, P. Holvorcem, P. A. Price, R. Canterna, G. B. Crew, G. R. Ricker, and S. D. Barthelmy, ApJ 651, 994, (2006)

*The Faint Afterglow and Host Galaxy of the Short-Hard GRB 060121*

A. J. Levan, N. R. Tanvir, A. S. Fruchter, E. Rol, J. P. U. Fynbo, J. Hjorth, G. Williams, E. Bergeron, D. Bersier, M. Bremer, T. Grav, P. Jakobsson, K. Nilsson, E. Olszewski, R. S. Priddey, D. Rafferty, and J. Rhoads, ApJ 648, L9, (2006)

*A Photometric Redshift of  $z = 6.39 \pm 0.12$  for GRB 050904*

J. B. Haislip, M. C. Nysewander, D. E. Reichart, A. Levan, N. Tanvir, S. B. Cenko, D. B. Fox, P. A. Price, A. J. Castro-Tirado, J. Gorosabel, C. R. Evans, E. Figueredo, C. L. MacLeod, J. R. Kirschbrown, M. Jelinek, S. Guziy, A. D. U. Postigo, E. S. Cypriano, A. Lacluyze, J. Graham, R. Priddey, R. Chapman, J. Rhoads, A. S. Fruchter, D. Q. Lamb, C. Kouveliotou, R. A. M. J. Wijers, M. B. Bayliss, B. P. Schmidt, A. M. Soderberg, S. R. Kulkarni, F. A. Harrison, D. S. Moon, A. Gal-Yam, M. M. Kasliwal, R. Hudec, S. Vitek, P. Kubanek, J. A. Crain, A. C. Foster, J. C. Clemens, J. W. Bartelme, R. Canterna, D. H. Hartmann, A. A. Henden, S. Klose, H.-S. Park, G. G. Williams, E. Rol, P. O'Brien, D. Bersier, F. Prada, S. Pizarro, D. Maturana, P. Ugarte, A. Alvarez, A. J. M. Fernandez, M. J. Jarvis, M. Moles, E. Alfaro, K. M. Ivarsen, N. D. Kumar, C. E. Mack, C. M. Zdarowicz, N. Gehrels, S. Barthelmy, and D. N. Burrows, Nature 440, 181, (2006)

*Evolution of the Polarization of the Optical Afterglow of the  $\gamma$ -ray Burst GRB030329*

J. Greiner, S. Klose, K. Reinsch, H. Martin Schmid, R. Sari, D. H. Hartmann, C. Kouveliotou, A. Rau, E. Palazzi, C. Straubmeier, B. Stecklum, S. Zharikov, G. Tovmassian, O. Bärnbantner, C. Ries, E. Jehin, A. Henden, A. A. Kaas, T. Grav, J. Hjorth, H. Pedersen, R. A. M. J. Wijers, A. Kaufer, H. Park, G. Williams, and O. Reimer, Nature 426, 157, (2003)

*\* The Livermore Optical Transient Imaging System*

H. Park, D. H. Hartmann, and G. G. Williams, The Future of Small Telescopes In The New Millennium. Volume III - Science in the Shadows of Giants. Edited by Terry D. Oswalt. Astrophysics and Space Science Library, Volume 289, Kluwer Academic Publishers, Dordrecht, p.331, (2003)

*A Search for Period Changes in Delta-Scuti Stars with the Super-LOTIS Sky Patrol System*

C. Blake, D. W. Fox, H. S. Park, and G. G. Williams, A&A 399, 365, (2003)

*The Spectroscopic Variability of GRB 021004*

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*The Bright Optical Afterglow of the Long GRB 001007*

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GCN Circular 1599, GRB 021004, spectroscopic observations, 2002



GCN Circular 1492, GRB 020813: early time magnitude, 2002  
GCN Circular 1404, GRB 020531, optical observation, 2002  
GCN Circular 1307, GRB 020322: optical observations, 2002  
GCN Circular 1131, GRB 010921, optical observation, 2001  
GCN Circular 981, GRB 010220, optical observations, 2001  
GCN Circular 873, GRB 001025B, optical observations, 2000  
GCN Circular 628, GRB 000408, lotis optical observations, 2000  
GCN Circular 437, GRB 991106: LOTIS Optical Observations, 1999  
GCN Circular 421, Super-LOTIS optical observation of GRB 991014, 1999  
GCN Circular 277, GRB 990316: simultaneous optical observation, 1999  
GCN Circular 272, GRB 990308 (Trig. 7457), optical observations, 1999  
GCN Circular 135, GRB 980703: LOTIS observation at early times, 1998  
GCN Circular 019, GRB 971227: LOTIS observations, 1997

## WORKS IN PROGRESS

*Evidence for Asymmetric Circumstellar Material around the Type II<sub>n</sub> SN 2010jl: Long-Term Spectropolarimetric Monitoring by the SNSPOL Project*

G. G. Williams, J. L. Hoffman, N. Smith, C. Biliniski, L. Dessart, L. Huk, D. C. Leonard,  
J. C. Mauerhan, P. A. Milne, and P. S. Smith,  
In preparation (2016)

*Multi-epoch Spectropolarimetry of SN 2011fe*

P. A. Milne, G. G. Williams, A. Porter, P. S. Smith, N. Smith, M. D. Leising, B. T. Jannuzi,  
and E. M. Green  
In preparation (2016)

*SN2012ab: A Peculiar Type II<sub>n</sub> Supernova with Non-Axisymmetric Circumstellar Material*

C. Biliniski, N. Smith, G. G. Williams, P. S. Smith, J. L. Hoffman, L. Dessart, L. Huk,  
D. C. Leonard, P. A. Milne, W. Zheng, M. Graham, J. C. Mauerhan, and  
A. V. Filippenko  
In preparation (2016)