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Last Modified: December 13, 2004

CAREER SUMMARY

Fifteen years' experience in astrophysics instrumentation, operations and research in X-ray, optical and radio wavelength bands, as well as high energy particle studies. Instructional experience in both classroom and small group settings, as well as outreach activities to the interested public. Enjoy computer programming and networking: computational, aesthetic, and interactive aspects.

Education **Massachusetts Institute of Technology** Cambridge, MA
Ph.D. degree in Physics, September 1999.
Thesis adviser: Prof. Hale V. Bradt
Title of thesis: "Observations of X-ray Counterparts to Gamma-ray Bursts in RXTE's All-Sky Monitor"

University of Chicago Chicago, IL
Bachelor of Arts degree in Physics, June 1992.

Teaching Experience **U. of Mich., Dept. of Physics** Ann Arbor, MI

Aug 2004 – May 2005 **Lecturer II**
Taught introductory physics classes. Fostered active learning by encouraging group problem-solving in small discussion sections.

Aug 2001 – Sep 2004 **Post-doctoral Fellow**
NSF Post-doctoral Fellowship for Research and Education in Astronomy and Astrophysics
Taught cosmology for a general audience as well as the senior writing seminar for physics majors. Developed engaging and dynamic approach, applying Peer Instruction and web-based interaction techniques. Wrote a planetarium show for the Exhibit Museum and engaged in outreach activities.

M.I.T., Department of Physics Cambridge, MA
Teaching Assistant
Fall 1998, Spr 2000 Twice led a hands-on weekly undergraduate astronomy seminar. Topics included orientation to the sky, telescope use, astrophotography and CCD imaging.

Feb 1997 – May 1997 Taught two sections of a larger introductory course in electricity and magnetism. Wrote and graded weekly quizzes. Developed web-based computer tools and animations to help demonstrate physical principles.

Research Experience **U. of Mich., Dept. of Physics** Ann Arbor, MI

Post-doctoral Fellow & Lecturer
Aug 2001 – Aug 2004 *NSF Post-doctoral Fellowship for Research and Education in Astronomy and Astrophysics*
Installed ROTSE-III telescopes around the world. Carried out research on early optical behavior of Gamma-Ray Bursts, discovering a new class of light curve profile, perhaps indicative of local absorption. Studied variable stars and optical emission from X-ray Binaries with undergraduate assistant.

Post-doctoral Associate
Sep 2000 – Jul 2001 *ROTSE*
Proposed and carried out research in the study of X-ray binaries and Gamma-Ray Bursts. Developed software and hardware for a world-wide network of fast-response small automated optical telescopes.

M.I.T., Center for Space Research Cambridge, MA
Post-doctoral Associate
Aug 1999 – Jul 2000 The Rossi X-Ray Timing Explorer
Carried out research programs in X-ray Astrophysics. Tracked the health and behavior of the All-Sky Monitor and developed programs to improve its efficiency.

M.I.T., Center for Space Research Cambridge, MA
Research Assistant
Aug 1993 – Aug 1999 The Rossi X-Ray Timing Explorer
Performed pre-flight testing and calibration of the All-Sky Monitor (ASM). Performed in-flight calibration, monitored detector health, and developed data analysis software. Proposed and conducted investigations in high-energy astrophysics. Developed networking software to parse the real-time ASM observations and report new discoveries, enabling rapid multi-wavelength follow-up observations. Discovered two microquasars and an unusual nova-like event. Proposed and carried out observations of ASM-detected GRBs with the Very Large Array and the Australian Telescope Compact Array.

Max Planck Institute for Extraterrestrial Physics Garching, Germany
Research Assistant
Oct 1992 - Jun 1993 Analyzed observations of the Galactic Center taken with the X-ray satellite *ROSAT*. Discovered X-ray emission from the synchrotron nebula “the Mouse”, confirming its nature as the bow shock from a runaway neutron star.

Enrico Fermi Institute, Laboratory for Astrophysics and Space Research
Junior Research Assistant Chicago, IL
Oct 1990 - Jul 1992 The Ulysses Satellite
Programmed systems and analyzed data for the High Energy Telescope, part of the Cosmic Ray and Solar Particle Investigation. Studied the propagation of electrons from Jupiter’s Magnetosphere through the interplanetary medium.

Enrico Fermi Institute, High Energy Physics Chicago, IL
Junior Technical Research Assistant
Oct 1989 – Sep 1990 The Chicago Air Shower Array
Built, tested, and assembled a large array of cosmic-ray scintillator detectors.

Outreach
Saturday Morning Physics: Fall 2001 – held three public lectures on X-ray astronomy that drew more than 250 people each week.
Metropolitan Methodist Church: Detroit, Summer 2001/2002 – gave two lectures on cosmology and Gamma-Ray Bursts to senior citizens’ group.
Public Lecture: Raleigh Astronomy Club, Raleigh, North Carolina, 24 September 2004.

Invited Presentations
“ROTSE-III and the AEOS Burst Camera: Rapid Follow-up to *Swift* Alerts”, oral presentation, *Swift* Workshop, HEAD Meeting, September 2004.
“Optical Precursors to Microquasar Outbursts”, oral presentation, International ROTSE Collaboration Meeting, August, 2004.
“The AEOS Burst Camera”, oral presentation to a National Academy of Sciences review panel, Kihei, Maui, May 2004.
“Chasing the Earliest Light from Gamma-Ray Bursts: The World-Wide ROTSE-III Network”, NSF Post-doctoral Fellow Symposium, Atlanta, GA, January 2004
“Tracking Celestial Explosions: The World-Wide ROTSE-III Network”, AAS Meeting, Albuquerque, NM, June 2002
Max-Planck-Institut für Kernphysik: Heidelberg, May 2002 – “The ROTSE-III Telescope System: Chasing Celestial Explosions.”

“Gamma-ray Bursts in the All-Sky Monitor on RXTE”, AAS Meeting, San Diego, CA, June 1998

Conference Presentations

“Recent Results and Future Prospects for the ROTSE-III Global Telescope Array”, poster presentation, AAS Meeting, New Orleans, LA, September 2004

“The Early Optical Afterglow of GRB 030418 and Progenitor Mass Loss”, oral presentation, AAS Meeting, Atlanta, GA, January 2004

“The World-Wide Network of ROTSE-III Telescopes”, poster presentation, AAS Meeting, Nashville, TN, June 2003

“ROTSE-III Observations of GRB 030329”, poster presentation with press conference, AAS Meeting, Nashville, TN, June 2003

“The ROTSE-IIIa Telescope System”, poster presentation, “Gamma-Ray Burst and Afterglow Astronomy 2001: A Workshop Celebrating the First Year of the HETE Mission”, Woods Hole, MA, November 2001

“Duration as a Function of Energy for Seven GRBs Observed with the RXTE All-Sky Monitor”, poster presentation, AAS - High Energy Astrophysics Division Meeting, Honolulu, HI, November, 2000

“ASM Light Curves for Two Gamma-Ray Bursts”, oral presentation, Rossi2000 Meeting, Greenbelt, MD, March 2000.

“Spectral and Intensity Evolution of the Rapidly Variable X-ray Nova V4641 Sgr”, poster presentation with press conference, American Astronomical Society Meeting, Atlanta, GA, January 2000

“RXTE All-Sky Monitor Localization of SGR 1627–41”, poster presentation, AAS Meeting, Chicago, IL, June 1999

“Localizations of Gamma-Ray Bursts by the All-Sky Monitor on RXTE”, poster presentation, AAS Meeting, Austin, TX, January 1999

“RXTE ASM observations of BATSE Gamma-ray Bursts”, poster presentation, AAS - High Energy Astrophysics Division Meeting, Estes Park, CO, November, 1997

“Gamma-ray Bursts in the All-Sky Monitor on RXTE”, oral presentation, 4th Huntsville Symposium on Gamma-Ray Bursts, Huntsville, AL, September 1997

“RXTE ASM and IPN Precise Position of BATSE Burst 5428”, poster presentation, AAS Meeting, Winston-Salem, NC, June 1997

“Detection of 1.91 ms Pulsations During a Burst from KS 1731-260”, poster presentation, AAS Meeting, Toronto, January 1997

“X-Ray Light Curves from the RXTE All-Sky Monitor”, poster presentation, AAS - High Energy Astrophysics Division Meeting, San Diego, CA, May 1996

Computer Skills

Proficient with UNIX/X11, Linux, Windows, and Macintosh operating systems.
Proficient with LaTeX, PERL, C, HTML, JavaScript and CGI programming.
Proficient with packages FTOOLS, IDL, and others.
Experienced with BASIC, FORTRAN, and PASCAL.
Familiar with C++ and Java.

Languages

Fluent in German

Honors and Awards

1986-7 – Congress-Bundestag Exchange Scholarship for one year of study in Germany.
1992-4 – Beinicke Memorial Scholarship. \$32,000 for two years at any graduate institution.
1992 – Student Marshals, Maroon Key Society.
2001-4 – NSF Fellowship: 3 years at \$55,000/yr.

Community Activities

2002-4 – Volunteer Co-coordinator for Friends’ General Conference High School Program.
Organized week-long retreat for 150 teenagers. Managed 15-person staff.
2001– Volunteered as lighting and sound technician at The Ark, a non-profit music venue.
1989– Theatrical technical work, amateur and (non-profit) professional.
Positions included master electrician, lighting designer and director.
Winner “Best Lighting Design”, Ann Arbor Civic Theater ’02-’03 and ’03-’04 seasons.
Served on AACT Play Selection Committee for 2004-2005 season.
1994–2002 New England Yearly Meeting Youth Education volunteer. Organized, with a team, retreats for high school students. Planned programs, managed small groups and led discussions.
2001–2003 Founded and led a monthly film discussion group, modeled on the Great Books Foundation’s “shared inquiry” discussion format.
1999–2000 Served as volunteer President of non-profit corporation to manage and maintain the Beacon Hill Friends House as intentional community and Quaker center.

Memberships

Phi Beta Kappa, 1992
American Astronomical Society, 1997
Sigma Xi, 2000

Publications

Rykoff, E., *et al.*, “Discovery of CVs ROTSE3 J151453.6+020934.2 and ROTSE3 J221519.8-003257.2”, *IBVS*, No. 5559, 2004.

Pedersen, K., *et al.*, “Multi-wavelength Studies of the Optically Dark Gamma-Ray Burst 001025A”, *Astrop. J.*, *submitted*, 2004.

Wozniak, P., *et al.*, “Northern Sky Variability Survey (NSVS): Public Data Release”, *Astronomical J.*, **127**, 2436, 2004.

Rykoff, E., *et al.*, “The Early Optical Afterglow of GRB 030418 and Progenitor Mass Loss”, *Astrop. J.*, **601**, 1013, 2004.

Smith, D., *et al.*, “ROTSE-III Observations of the Early Afterglow From GRB 030329”, *Astrop. J. Lett.*, **596**, p. L151, 2003.

Woods, P., *et al.*, “The 2001 April Burst Activation of SGR 1900+14: Pulse Properties and Torque”, **596**, 464, 2003.

Smith, D. A., *et al.*, “The ROTSE-IIIa Telescope System”, Proceedings of “Gamma-Ray Burst and Afterglow Astronomy 2001: A Workshop Celebrating the First Year of the HETE Mission”, American Institute of Physics Conference Series, **662**, 514, 2003.

Levine, A. M., Bradt, H., Remillard, R., & Smith, D. A. “RXTE All-Sky Monitor Observations of GRB Light Curves”, Proceedings of “Gamma-Ray Burst and Afterglow Astronomy 2001: A Workshop Celebrating the First Year of the HETE Mission”, American Institute of Physics Conference Series, **662**, 276, 2003.

Akerlof, C., *et al.*, “The ROTSE-III Robotic Telescope System”, *PASP*, **15**, 803, 132, 2003.

Kuulkers, E., *et al.*, “A half-a-day long thermonuclear X-ray burst from KS 1731-260”, *Astron. & Astrop.*, 382, 503, 2002.

Kehoe, R., *et al.*, “An Untriggered Search for Brief Optical Bursts”, *Astrop. J.*, **577**, 845, 2002.

Smith, D. A., *et al.*, “X-Ray Light Curves of Gamma-ray Bursts Detected with the All-Sky Monitor on *RXTE*”, *Astrop. J. Supp.*, **141**, 415, 2002.

Smith, D. A., *et al.*, “Discovery of the CV ROTSE3 J015118.59-022300.1”, *IBVS* No. 2556, 2002.

- Bradt, H., Levine, A., Marshall, F., Remillard, R., Smith, D., & Takeshima, T., “Observations of Gamma-ray Bursts with the Rossi X-ray Timing Explorer”, Proceedings Of The Joint CNR/ESO Meeting, “Gamma-Ray Bursts in the Afterglow Era: 2nd Workshop”, F. Frontera, E. Costa, & J. Hjorth (eds.), Springer Verlag (astro-ph/0108004).
- Wren, J., *et al.*, “Observations of the Optical Counterpart to XTE J1118+480 during Outburst by the Robotic Optical Transient Search Experiment I Telescope”, *Astrop. J. Lett.*, **557**, L97, 2001.
- Kehoe, R., *et al.*, “A Search for Early Optical Emission from Short and Long Duration Gamma-ray Bursts”, *Astrop. J. Lett.*, **554**, L159, 2001.
- Woods, P., *et al.*, “Evidence for a Sudden Magnetic Field Reconfiguration in SGR 1900+14”, *Astrop. J.*, **552**, 748, 2001.
- Smette, A., *et al.*, “HST/STIS observations of GRB000301C: CCD imaging and NUV MAMA spectroscopy”, *Astrop. J.*, **555**, 2001.
- Hjellming, R., *et al.*, “Light Curves and Radio Structure of the 1999 September Transient Event in V4641 Sagittarii (=XTE J1819-254=SAX J1819.3-2525)”, *Astrop. J.*, **544**, 977, 2000.
- Bradt, H., Levine, A., Remillard, R., & Smith, D., “X-ray Transients Monitored by the All-Sky Monitor on *RXTE*: A Tabulation”, in “X-ray Astronomy '99: Stellar Endpoints, AGN and the Diffuse Background”, G. Malaguti, G. Palumbo, & N. White (eds.), pub. Gordon and Breach, 2000 (astro-ph/0003438).
- Bradt, H., Levine, A., Remillard, R., & Smith, D., “Transient X-Ray Sources Observed with the *RXTE* All-Sky Monitor after 3.5 Years”, Proceedings of the Vulcano May 1999 Workshop, F. Giovannelli and Lola Sabau-Graziati (eds.), Mem SAI, Vol 71, 2000 (astro-ph/0001460).
- Smith, D. A., *et al.*, “Localizations of Twelve Gamma-ray Bursts by the All-Sky Monitor on *RXTE*”, *Astrop. J.*, **526**, 683, 1999.
- Schaefer, B., *et al.*, “Discovery of the Optical Transient of GRB 990308”, *Astrop. J.*, **524**, L103, 1999.
- Bradt, H. V., & Smith, D. A., “Gamma-ray Burst Positions from the ASM on *RXTE*”, *Astron. & Astrop. Supp. Ser.*, **138**, 423, 1999.
- Smith, D. A., Bradt, H. V., & Levine, A. M., “*RXTE* All-Sky Monitor Localization of SGR 1627-41”, *Astrop. J.*, **519**, L147, 1999.
- Vreeswijk, V. M., *et al.*, “The X-ray, Optical and Infrared Counterpart to GRB 980703”, *Astrop. J.*, **523**, 171, 1999.
- Smith, D. A., *et al.*, “Gamma-Ray Bursts in the All-Sky Monitor on *RXTE*”, in *Gamma-Ray Bursts: 4th Huntsville Symposium*, eds. Meegan, C., Preece, R., & Kosht, T., p. 430, 1998.
- Smith, D. A., Morgan, E. H., & Bradt, H. V., “*RXTE* Discovery of Coherent Millisecond Pulsations during an X-ray Burst from KS 1731-260”, *Astrop. J.*, **479**, L137, 1997.
- Levine, A. M., *et al.*, “First Results from the All-Sky Monitor on the *Rossi X-Ray Timing Explorer*”, *Astrop. J.*, **469**, L33, 1996.
- Simpson, J.A., Smith, D.A., & Zhang, M., “Jovian Electron Propagation in Three Dimensions of the Heliosphere: The Ulysses Investigations”, *J. of Geoph. Res.*, Vol. 98, No. A12, pp. 21,129-21,144, 1993.

**Circulars
and Telegrams**

- Levine, A., *et al.*, IAUC 6390. First results from the ASM.
- Corbet, R., Peele, A., & Smith, D. A., IAUC 6632
The detection of a 37 d period from X2127+119.

Smith, D. A., *et al.*, IAUC 6718. The ASM localization of GRB 970815.

Smith, D. A., *et al.*, IAUC 6728. A refined position of GRB 970828.

Kippen, R. M., *et al.*, IAUC 6789. Observations of GRB 971214.

Smith, D. A., *et al.*, IAUC 6855. The ASM discovery of XTE J0412+560.

Smith, D. A., Levine, A., & Wood, A., IAUC 6932
The ASM discovery of XTE J1748-288.

Smith, D. A., Levine, A., & Munro, M., GCN Circ 126
The ASM localization of GRB 980703.

Fox, D., *et al.*, ATEL 32. The ASM detects a new Rapid Burster outburst.

Remillard, R., Smith, D. A. & Levine, A., IAUC 7002
The ASM detects an X-ray flare most likely from SGR1900+14.

Smith, D. A., IAUC 7008
The ASM discovers new black hole candidate transient XTE J1550-564.

Smith, D. A. & Takeshima, T., IAUC 7014
The ASM discovers reemergence of 3A 1942+274, revealed to be a 16-s pulsar.

Rutledge, R., Fox, D., & Smith, D. A., ATEL 37
The ASM reveals that XTE J1550-564 flared up to 6.8 Crab.

Smith, D. A., GCN Circ 159. The ASM localization of GRB 981220

Hurley, K., *et al.*, GCN Circ 160
The IPN Annulus intersects the ASM error box for GRB 981220.

Smith, D. A., *et al.*, GCN Circ 275
ASM/IPN error box for GRB 990308 (BATSE No. 7457).

Smith, D. A., Levine, A., & Morgan, E., IAUC 7253
Discovery of X-ray Flare from V4641 Sgr.

Wood, A., Smith, D. A., Marshall, F., & Swank, J., IAUC 7274
Discovery of New X-ray Transient XTE J1859+226.

Corbet, R. & Smith, D. A., GCN Circ 506
ASM Detection of Early Afterglow from GRB 991216.

Smith, D. A., Hurley, K., & Cline, T., GCN Circ. 568
GRB000301C: RXTE/ASM and IPN localizations.

Remillard, R., Morgan, E., Smith, D. A., & Smith, E., IAUC 7389
Discovery of X-ray Nova XTE J1118+480.

Smith, D. A., Levine, A., Hurley, K., & Barthelmy, S., GCN Circ. 665
ASM/IPN localizations of GRB000508B.

Smith, D. A., Levine, A., Remillard, R., Hurley, K., & Cline, T., GCN Circ. 861
ASM/IPN localizations of GRB001025.

Hurley, K., & Smith, D. A., GCN Circ. 921
ASM/IPN localizations of GRB010126.

Akerlof, C., McKay, T., Rykoff, E., & Smith, D., GCN Circ. 1115
GRB011019: ROTSE-III optical observations.

Woods, P., *et al.*, GCN Circ. 1256
RXTE observations of Sgr 1900+14.

Smith, D. & Levine, A., GCN Circ. 1332
GRB020406: RXTE/ASM detection.

Smith, D. & Remillard, R., GCN Circ. 1341
GRB020406: RXTE/ASM refined position.

Remillard, R. & Smith, D., IAUC 7880
Discovery of fast X-ray transient XTE J1901+014

Rykoff, E., & Smith, D., GCN Circ. 1480
Early Time Limits for GRB020813

Smith, D. A., & Remillard, R., ATEL 129 & 130
X-ray Detection of Solar Flare Reflected off of the Moon

Smith, D., & Rykoff, E., GCN Circ. 1952
GRB 030323, ROTSE-III detection of possible optical counterpart

Rykoff, E., & Smith, D., GCN Circ. 1958
GRB 030324, Optical Observations

Rykoff, E., & Smith, D., GCN Circ. 1995
GRB 030329: Optical Afterglow Observations

Smith, D., GCN Circ. 2019
GRB 030329: ROTSE network observes steepening of decay curve

Smith, D., Rykoff, E., & McKay, T., GCN Circ. 2153
ROTSE-III prompt optical detections of GRB 030418

Smith, D., GCN Circ. 2178
GRB 030429: ROTSE-III observations

Smith, D., & Quimby, R., GCN Circ. 2318
XRF 030723, ROTSE-III Early Observations

Smith, D., Akerlof, C., & Quimby, R., GCN Circ. 2338
XRF 030723: Re-analysis of ROTSE-III early images

Rykoff, E., & Smith, D., GCN Circ. 2395
GRB 030913: ROTSE-3c Optical Observations

Remillard, R., Levine, A., Lin, D. & Smith, D., ATEL 204
New X-ray Transient XTE J1748-361

Smith, D. A., GCN Circ. 2595
GRB 040511: ROTSE-III Rapid Optical Upper Limits

Smith, D. A., Yost, S. A., & Rykoff, E. S., GCN Circ. 2692
ROTSE-III Rapid Response to possible GRB 040903

Yost, S. A., Smith, D. A., Rykoff, E. S., & Swan, H., GCN Circ. 2776
ROTSE-IIIa Observations of GRB 041006