

Eli S. Rykoff

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Education

- 1999-2005 **University of Michigan**, Ann Arbor, MI
Ph.D., Physics. Advisor: Carl Akerlof
Title: "Prompt Observations of Gamma-Ray Burst Afterglows with ROTSE-III"
1992-1996 **Amherst College**, Amherst, MA
B.A., *magna cum laude*, Physics & English Literature

Professional Experience

- 2007- TABASGO Research Fellow, Physics Dept., UCSB.
2005-2007 Research Fellow, Physics Dept., University of Michigan.
1996-1998 Peace Corps Volunteer.
Physics Teacher, Mkwawa Secondary School, Iringa, Tanzania

Professional Memberships and Awards

- 2006 Kent M. Terwilliger Memorial Thesis Prize, Physics Dept, University of Michigan
2002-2005 NASA Graduate Student Research Program Fellowship
Technical Advisor: Neil Gehrels, GSFC, Greenbelt, MD
2004 Sokol Fellowship for International Research
2002- Member, American Astronomical Society
2001-2003 Michigan Space Grant Consortium Fellowship

Public Outreach

- 2007 AAS/AAPT "Cool Astronomy":
"Transients in 10 seconds or less: catching Gamma-Ray Bursts in the act with ROTSE"
2006 Saturday Morning Physics: A three week public lecture series
"Apocalypse Maybe: Speculative Doomsday Scenarios for the End of the Earth"

Research Interests and Expertise

Complete understanding of astrophysical sources requires multi-wavelength observations. Black hole accretion systems, including Gamma-Ray Bursts (GRBs), Black Hole X-Ray Binaries (BHXRBs), and active galactic nuclei (AGNs) emit copious amounts of radiation in all wavelengths, and coordinated broadband observations are essential to ascertain the physical processes involved. For clusters of galaxies, X-ray and optical observations reveal complementary information about the clusters; X-ray observations reveal the hot intra-cluster plasma, but optical richness and velocity dispersion measurements also trace the total cluster mass. In my graduate studies I constructed, installed, and operated the Robotic Optical Transient Search Experiment (ROTSE-III) telescope array, a global network of 0.45-m automated telescopes designed for very rapid (~ 6 s) response to GRB triggers from satellites such as *Swift*. The study of prompt optical counterparts of GRBs also requires multi-wavelength analysis including the *Swift*/BAT and XRT instruments. In addition to work with GRBs and BHXRBs, I have studied the average X-ray properties of the maxBCG SDSS cluster catalog (Koester et al, 2006) by using the ROSAT all-sky survey (RASS).

Journal Publications

- Rykoff, et al., 2007, “Measuring the mean and scatter of the X-ray luminosity – optical richness relation for maxBCG galaxy clusters”, astro-ph/0709.1158.
- Quimby, et al., 2007, “SN 2005ap: A Most Brilliant Explosion”, astro-ph/0709.0302.
- Yost, S. A., et al., 2007, “The Dark Side of ROTSE-III Prompt GRB Observations”, astro-ph/0707.3132.
- Rykoff, E. S., et al., 2007, “Swift Observations of the Cooling Accretion Disk of XTE J1817–330”, *ApJ*, 666, 1129.
- Ruiz-Velasco, A. E., et al., 2007, “Detection of GRB 060927 at $z = 5.47$: Implications for the Use of Gamma-Ray Bursts as Probes of the End of the Dark Ages”, astro-ph/0706.1257.
- Quimby, R. M., et al., 2007, “SN 2006bp: Probing the Shock Breakout of a Type II-P Supernova”, *ApJ*, 666, 1093.
- Yost, S. A., Swan, H. F., Rykoff, E. S., et al., 2007, “Exploring Broadband GRB Behavior During gamma-ray Emission”, *ApJ*, 657, 925.
- Rykoff, E. S., et al., 2006, “The Anomalous Early Afterglow of GRB 050801”, *ApJ*, 638, L5.
- Quimby, R. M., Rykoff, E. S., et al., 2006, “Early-Time Observations of the GRB 050319 Optical Transient”, *ApJ*, 640, 402.
- Rykoff, E. S., et al., 2005, “A Search for Untriggered GRB Afterglows with ROTSE-III”, *ApJ*, 631, 1032.
- Rykoff, E. S., et al., 2005, “Prompt Optical Detection of GRB 050401 with ROTSE-IIIa”, *ApJ*, 631, L121.
- Yost, S. A., et al., 2006, “Optical Light Curve & Cooling Break of GRB050502a”, *ApJ*, 636, 959.
- Quimby, R. M., et al., 2006, “SN 2005cg: Explosion Physics and Circumstellar Interaction of a Normal Type Ia Supernova in a Low-Luminosity Host”, *ApJ*, 636, 400.
- Rykoff, E. S., et al., 2004, “Discovery of CVs ROTSE3 J151453.6+020934.2 and ROTSE3 J221519.8-003257.2”, *IBVS*, 5559, 1.
- Wozniak, P. R., et al., 2004, “Northern Sky Variability Survey: Public Data Release”, *AJ*, 127, 2436.
- Rykoff, E. S., et al., 2004, “The Early Optical Afterglow of GRB 030418 and Progenitor Mass Loss”, *ApJ*, 601, 1013.
- Smith, D. A., et al., 2004, “ROTSE-III Observations of the Early Afterglow from GRB 030329”, *ApJ*, 596, L151.
- Akerlof, C. W., et al., 2003, “The ROTSE-III Robotic Telescope System”, *PASP*, 115, 132.
- Kehoe, R. L., et al., 2002, “An Untriggered Search for Optical Bursts”, *ApJ*, 577, 845.
- Smith, D. A., et al., 2002, “Discovery of the CV ROTSE3 J015118.59-022300.1”, *IBVS*, 5226, 1.
- Wren, J., et al., 2001, “Observations of the Optical Counterpart to XTE J1118+480 during Outburst by the Robotic Optical Transient Search Experiment I Telescope”, *ApJ*, 557, L97.
- Kehoe, R. L., et al., 2001, “A Search for Early Optical Emission from Short- and Long-Duration Gamma-Ray Bursts”, *ApJ*, 554, L159.

Selected Circulars And Telegrams

- Rykoff, E. S., *et al.*, 2007, “GRB 070611: ROTSE-III Detection of Late Rising Optical Counterpart”, GCN Circular, 6497.
- Rykoff, E. S., *et al.*, 2007, “GRB 070411: ROTSE-III detection of optical counterpart.”, GCN Circular, 6269.
- Rykoff, E. S., *et al.*, 2006, “GRB 061007: ROTSE-III Detection of Optical Counterpart”, GCN Circular, 5706.
- Rykoff, E. S., *et al.*, 2006, “GRB 060904B: ROTSE-III Detection of Optical Counterpart”, GCN Circular, 5504.
- Rykoff, E. S., *et al.*, 2006, “GRB 060605: ROTSE-III Detection of Optical Counterpart”, GCN Circular, 5220.
- Rykoff, E. S., 2005, “Supernova 2005ch”, IAU Circular 8539, 2.
- Rykoff, E. S., *et al.*, 2005, “Supernova 2005cg”, IAU Circular 8537, 2.
- Rykoff, E. S., 2005, “Discovery of CV ROTSE3 J212313-021446.6”, The Astronomer’s Telegram, 508.
- Rykoff, E. S., 2005, “2QZ J142701.6-012310”, IAU Circular 8531, 2.
- Rykoff, E. S., *et al.*, 2005, “Discovery of CV ROTSE3 J16134+012124.4”, The Astronomer’s Telegram, 461.
- Rykoff, E. S., *et al.*, 2005, “Discovery of CV ROTSE3 J100932.2-020155”, The Astronomer’s Telegram, 423.
- Rykoff, E. S., *et al.*, 2005, “ROTSE-III detection of optical outburst of 2QZ J142701.6-012310”, The Astronomer’s Telegram, 403.
- Rykoff, E. S., *et al.*, 2005, “GRB050525: ROTSE-III refined analysis”, GCN Circular, 3468.
- Rykoff, E. S., *et al.*, 2005, “GRB 050525A: ROTSE-III detection of possible counterpart”, GCN Circular, 3465.
- Rykoff, E. S., *et al.*, 2005, “GRB 050509c: ROTSE-III optical limits”, GCN Circular, 3406.
- Rykoff, E. S., *et al.*, 2005, “GRB 050509A: ROTSE-III optical limits”, GCN Circular, 3382.
- Rykoff, E. S., *et al.*, 2005, “GRB 050421: ROTSE-III optical limits”, GCN Circular, 3304.
- Quimby, R. M., *et al.*, 2005, “GRB050412: ROTSE-III optical limits”, GCN Circular, 3238.
- Smith, D. A., *et al.*, 2005, “GRB 050408: ROTSE-III optical limits”, GCN Circular, 3190.
- Rykoff, E. S., *et al.*, 2005, “GRB050401: ROTSE-III detection of prompt optical counterpart”, GCN Circular, 3165.
- Quimby, R. M., *et al.*, 2005, “GRB 050319: ROTSE-III refined analysis”, GCN Circular, 3135.
- Rykoff, E. S., *et al.*, 2005, “GRB 050319: detection of possible optical counterpart”, GCN Circular, 3116.

Selected Conference Proceedings and Abstracts

- Rykoff, E. S., “Multi-wavelength Study of Prompt Optical Counterparts of Swift GRBs Detected by ROTSE-III”, AAS, #209, 212.01.
- Rykoff, E. S., “Recent Results from ROTSE-III Observations of Prompt Optical Counterparts of GRBs”, XXIII Texas Symposium on High Energy Astrophysics 2006, U. Melbourne, Australia.
- Rykoff, E. S., “ROTSE Survey for Supernovae and Other Transients”, Transient Universe 2006, KITP, UCSB.
- Rykoff, E. S., *et al.*, “Prompt Observations of Gamma-Ray Burst Afterglows with ROTSE-III”, AAS #207, 158.05.
- Yost, S. A., *et al.*, “Prompt ROTSE Response to GRB050319”, AAS #206, 47.01.
- Smith, D. A., *et al.*, “Recent Results and Future Prospects for the ROTSE-III Global Telescope Array”, HEAD #8, 18.15.
- Rykoff, E. S., *et al.*, “Response of the ROTSE-III Telescope Systems to Simulated GRB Alerts”, AAS #202, 46.01.
- Rykoff, E. S., *et al.*, “Optical Transient Search with ROTSE-III”, AAS #199, 12.05.