

# Eric J. Hilton

Postdoctoral Researcher, Institute for Astronomy

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## Current Position

Postdoctoral Researcher, low-mass stars and exoplanets  
Institute for Astronomy and Dept. of Geology and Geophysics  
*Advisor: Eric Gaidos*

beginning August 2011

## Education

- PhD (Astronomy) **University of Washington** August, 2011  
“The Galactic M Dwarf Flare Rate”  
*advisor: Suzanne Hawley*
- B.S. (Physics), Science & Humanities Scholar, **Carnegie Mellon University** 2003  
*advisor: Robert Nichol*
- Study abroad, **University of Manchester** Spring, 2002

## Research Interests

Characterization of low-mass stars; magnetic activity and flaring; time domain studies

## Telescope and Instrument Experience

- Researched, purchased, and commissioned Flare-cam, an Apogee Instruments UV-47 back illuminated CCD that has been used on 0.5m ARCSAT (Apache Point Observatory, NM) and 0.7m Manatashash Ridge Observatory (Ellensburg, WA).
- Have observed with Agile (fast photometer-3.5m APO), DIS (medium resolution spectrograph-3.5m APO), Triple-Spec (IR spectrograph -3.5m APO), Ultracam (fast 3-band photometer, 4.2m WHT), Flare-cam (photometer, 0.5m ARCSAT/0.7m MRO), Spectrograph (medium resolution, 1.8m Plaskett Telescope, DAO)
- Reduction (including full pipeline reduction) and analysis of XMM-Newton observations through SAS.
- Assisted with testing and commissioning of Agile at 3.5m APO.

## Computing and Programming Experience

- Extensive programming experience focused on IDL, but also Python, C++, Fortran, Java, SML

## Talks and Posters

- *Revealing Stellar Magnetic Fields through M Dwarf Flares* – dissertation talk  
**American Astronomical Society** Meeting, January, 2011, Seattle, WA
- *The Galactic M Dwarf Flare Rate* – contributed talk  
**Cool Stars 16**, Aug 30, 2010, Seattle, WA
- *Flare Rates on M Dwarfs: Observing Program* - poster  
**American Astronomical Society** Meeting, January 2009, Long Beach, CA
- *The Galactic M Dwarf Flare Rate* – contributed talk  
**NSBP/NSHP meeting**, Feb, 2009, Nashville, TN
- *M Dwarf Flares from Time-Resolved SDSS Spectra* - poster

- **Cool Stars 15**, July 21-25, St. Andrews, Scotland
- *XMM-Newton Observations of Three Interesting Cataclysmic Variables* – poster
- **American Astronomical Society Meeting**, January 5-10, 2007, Seattle, WA
- *Characteristics of M Dwarf Flares* – poster
- **Cool Stars 14**, November 6-10, 2006, Pasadena, CA
- *Observations of the M Dwarf Flare Star AD Leo* - talk
- **Northwest Astronomers Association Regional Meeting**, May 6, 2006, Everett, WA

24<sup>th</sup> Winter School in Theoretical Physics. The Lives of Low Mass Stars and their Planetary Systems. Institute of Advanced Studies, Hebrew University. Jerusalem, Israel. Dec. 27, 2006 – Jan. 5, 2007. Talk on. M Dwarf Flaring Rates.

### Awards

- Chambliss Student Poster Award, Honorable Mention, 215<sup>th</sup> AAS, January, 2010
- Wa. NASA Space Grant Fellowship, 2007
- Barry Goldwater Scholarship, 2001-2003
- ARCS fellowship, 2005-2007
- Outstanding Physics Graduate of 2003
- Andrew Carnegie Society Scholar, 2003
- Carnegie Mellon Senior Leader, 2003
- NASA USRP Fellowship, 2001
- Phi Kappa Phi Honor Society
- University and college honors
- Dean's List

### Teaching Experience

- **Instructor** for Communicating your Science to the Public Effectively (Astr 599B). UW, fall, 2010  
Developed curriculum and taught course for graduate student scientists
- **Teaching Assistant** for Data Reduction and Analysis (Astr 480). UW, spring, 2007, 2008-2010  
Taught advanced undergraduates data reduction techniques for photometry and spectroscopy, including PSF-photometry.  
Achieved an effectiveness and contribution rating of 4.9/ 5.0.  
Developed lab on generating light curves from consecutive images
- **Teaching Assistant** for Observing Techniques (Astr 481). UW, summer, 2007-2010  
Taught advanced undergraduates how to observe using the Manastash Ridge Observatory 0.7m telescope.
- **Teaching Assistant** for Astronomy 101 and 150. UW, Fall, 2005 -2007  
Taught 50 students a quarter  
Achieved an effectiveness and contribution rating of 4.75 / 5.0.  
- *"You genuinely wanted us to learn and used great examples and analogies to teach the material"*  
- *"You were a great T.A. One of the best I've had in four years."* -Astro 101 students
- Teaching Assistant for **Upward Bound Summer Bridge**. UW, Summer 2006

- Taught 25 low-income or first-generation high school students in college preparation program
- High School Science Teacher **Peace Corps** Guyana 2003-2005
  - Taught 14-16 year olds in basic science
  - Overcame challenges such as overcrowded classrooms and lack of textbooks and equipment
- **C.L.U.E. Tutor** for Astronomy 101 Fall 2005
  - Provided one-on-one and small group tutoring

### Teacher Training

- **TA Conference on Teaching and Learning.** UW, Fall, 2005.
  - Attended a 3-day conference with topics including: Teaching Math, Science, and Engineering; Motivating Students to Learn; Presenting Information Effectively.
- **Peace Corps Education Training Program.** Guyana, Spring, 2003.
  - Participated in an 8-week intensive training program focused on student-centered learning techniques and using in-class teacher training and evaluation.

### Public Outreach and Diversity

- **Founder**, Engage: The Science Speaker Series ([engage-science.com](http://engage-science.com))
  - Program for young scientists to give talks about their research to the general public
- **Science Communication Fellow**, Pacific Science Center, 2009-2011
  - Developed hands-on activity called “Twinkling Little Stars” – used at the Pacific Science Center and other outreach events
- **Graduate Student Advisor**, Office of Minority Affairs and Diversity, EIP/McNair Program
  - Advise and mentor minority advanced undergraduates into PhD programs
- **Founder and Board Member**, Technically Learning. Fall 2006 – present.
  - Oversee operations and provide strategies for non-profit corporation that improves STEM education of underrepresented groups by developing hands-on learning Techniques ([technicallylearning.org](http://technicallylearning.org))
- **Pre-Major in Astronomy Program**, staff. Fall, 2005 – 2010
  - Provide support for a program to increase diversity in astronomy through research and seminars for first-year students
    - Research advisor for 2 Pre-MAP students on M dwarf flare rates, Fall 2008
    - Research advisor for 2 Pre-MAP students on eclipsing binaries in SDSS, Fall 2007
  - Developing strategy and proposal to expand program into other science departments, including submission of \$2 million NSF STEP proposal
  - Designed full color brochure for recruitment
- **Certificate in International Development**, UW Evans School of Public Affairs, 2011
  - specialization in theory and practice of international development – 6 course certificate
- **Outreach Coordinator**, UW Planetarium, Spring, 2006 – Spring, 2008
  - Arrange schedules, direct volunteers, and present planetarium shows for K-12 groups

- **Delegate for the AAS at the 2011 Congressional Visiting Days**, lobbied members of Congress to support science and science funding
- **Public Lecture**, *Big Flares on Little Stars*, Seattle Astronomical Society, Fall, 2010
- **Public Lecture**, *Big Flares on Little Stars*, Engage: The Science Speaker Series, Winter, 2010
- **Public Lecture**, *The Fate of the Universe*, UW Jacobson Observatory, Summer, 2006

#### Publications

- The Galactic M Dwarf Flare Rate. **Hilton, E.J.**, Hawley, S.L., Kowalski, A.F., Holtzman, Jon. 2010, *Cool Stars 16 Proceedings*. arXiv:1012.0577.
- M Dwarf Flares from Time-Resolved SDSS Spectra. **Hilton, E.J.**, Hawley, S.L., West, A.A., Kowalski, A.F. 2010, *AJ*, 140, 1402
- XMM-Newton and Optical Observations of Cataclysmic Variables from the Sloan Digital Sky Survey. **Hilton, E.J.** et al. 2009, *AJ*, 137, 3606.
- XMM-Newton Observations of the Cataclysmic Variable GW Librae. **Hilton, E. J.** et. al., 2007, *AJ*, 134,1503H

#### Co-authored Publications

- The Sloan Digital Sky Survey DR7 Spectroscopic M Dwarf Catalogue I: Data. West, A.A., et al., 2011, *AJ*,141, 97W.
- A White Light Megaflare on the dM4.5e Star YZ CMi. Kowalski, A.F., Hawley, S.L., Holtzman, J.A., Wisniewski, J.P., Hilton, E.J. 2010, *ApJL*, 714, 98.
- M Dwarfs in Sloan Digital Sky Survey Stripe 82: Photometric Light Curves and Flare Rate Analysis. Kowalski, A.F., et al., 2009, *AJ*, 138, 633.
- Constraining the Age-Activity Relation for Cool Stars: The SDSS DR5 Low-Mass Star Spectroscopic Sample. West, A.A., et al. 2008, *AJ*, 135, 785.
- The First Hour of Extra-galactic Data of the Sloan Digital Sky Survey Spectroscopic Commissioning: The Coma Cluster. Castander, F. J. et. al. 2001, *AJ*. 121, 2331.