Amber L. Stuver

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Education

- The Pennsylvania State University, University Park, PA 16802 *(Fall 1999 – Summer 2006)*
  - Ph.D. Physics, August 2006
    - Thesis Title *Burst Gravitational Wave Data Analysis Methods: Design, Development and Comparison*
    - Advisor: Lee Samuel Finn
  - M.Ed. Physics; Educational Minor in Higher Education, August 2001
    - Thesis Title: *Analysis of the Undergraduate Curriculum Department of Physics The Pennsylvania State University, University Park*
    - Advisor: Gabriela González
- Frostburg State University, Frostburg, MD 21532 *(Fall 1997 – Spring 1999)*
  - B.S. Physics and General Science; Minor in Mathematics, May 1999, Magna Cum Laude
    - Thesis Title: *CCD Variable Star Photometry*
    - Advisor: Gregory Latta
- Westmoreland County Community College, Youngwood, PA 15697 *(Spring 1997 – Summer 1997, Summer 1998)*
- Hempfield Area Senior High School, Greensburg, PA 15601 *(Fall 1993 – Spring 1997)*
  - Diploma, June 1997

Employment

- The California Institute of Technology, Pasadena, CA 91125
  - 2007 – Present; Postdoctoral Scholar in Physics, detached duty at the LIGO Livingston Observatory (Livingston, LA)
- The Pennsylvania State University, University Park, PA 16802
  - Spring 2003, 2004, 2005, 2006 and 2007; Lecturer for Post-Baccalaureate Pre-Medical Program
  - Spring 2002 – Summer 2006; Full Research Assistantship (RA); Advisor: L. Samuel Finn (S.F.)
    - While working under S.F., I worked within the LIGO burst group in data analysis techniques searching for short duration gravitational waves from unpredicted sources. This included the core development of the BlockNormal event trigger generator (ETG), the revival of the SLOPE ETG and the development of a robust gravitational wave simulation engine called GravEn. For my thesis, I studied the head-to-head efficacies of the different burst ETGs to different properties of gravitational waveforms.
  - Summer 2004; Instructor for Physics Department
  - Spring 2001 – Fall 2001; Full RA; Advisor: Gabriela González (G.G.)
    - While working under G.G., I worked on developing a double pendulum with cantilever spring suspensions (similar to the suspensions used in GEO600) for the Advanced LIGO upgrades. This work focused on the measurement of motion transfer functions through the suspensions to study seismic isolation.
  - Fall 2000; Half RA/ Half Teaching Assistantship (TA); Advisor: G.G.
  - Summer 2000; Full RA; Advisor: G.G.
  - Fall 1999 – Spring 2000; Full TA
  - Summer 1999; Full RA; Advisor: G.G.
- Frostburg State University, Frostburg, MD 21532
  - Spring 1999; Physics and Calculus Tutor through University Support Services
  - Fall 1998 – Spring 1999; Physics Department Student Aide/TA

Teaching

- Instructor, PHYS 001 (The Science of Physics [conceptual]), Summer 2004
- Lecturer, PHYS 251 (Introduction to Physics II [algebra]), Spring 2003, 2004, 2005, 2006 and 2007
    - Gave lectures to students in Post-Baccalaureate Pre-Medical Program who had a conflict with the normal lecture. Lectures followed pace and content of primary professor.
- Grader, PHYS 419 (Theoretical Mechanics), Spring 2001
- Recitation TA, PHYS 215 (Introduction to Physics I [algebra]) -*discontinued*, Fall 2000
- Recitation TA, PHYS 265 (Introduction to Physics II [algebra]) -*discontinued*, Fall 1999 and Spring 2000

Service

- Big Sister for the Big Brothers/Big Sisters program through the Centre County Youth Services Bureau, State College, PA; April 2005 – Present.
- State Page and Bellefonte Chapter Delegate to the PA State Society Daughters of the American Revolution (DAR) Conference, York, PA; April 2007.
- Bellefonte Chapter DAR Junior Membership Chairperson; Fall 2006 – Present.
- Physics and Engineering Paper Judge for the 2007 PA Jr. Science and Humanities Symposium, Penn State University; March 2007.
- WISE (Women in Science and Engineering) Advisory Committee Graduate Student Representative, Penn State University; Fall 2005 – Spring 2006.
- PAW (Physics and Astronomy for Women) group coordinator and mentor for undergraduate female students in introductory physics sequence, Penn State University; Spring 2003 – Spring 2006.
- Graduate Student Representative to the Physics Department Climate Committee, Penn State University; Fall 2000 – Spring 2001 and Fall 2002 – Summer 2004.
- Graduate Student representative to the Eberly College of Science Diversity and Climate Committee, Penn State University; Fall 2000 – Spring 2004.
- Treasurer, Frostburg State University chapter of Society of Physics Students (SPS); Fall 1998 – Spring 1999.

Honors and Awards

- Awarded the R. Paul Campbell Volunteer of the Year from the Centre County Youth Services Bureau, State College, PA; May 2007.
- Elected to the American Physical Society's Forum on Graduate Student Affairs (FGSA) Executive Board as Member-at-Large; January 2005 to January 2007.
- Graduated from Frostburg State University (FSU) with departmental honors in Physics (first in class rank) and elected as the School of Natural and Social Sciences Student Commencement Speaker; Spring 1999.
- Scholarships: Tam Memorial Scholarship (FSU, Physics), Fall 1998 – Spring 1999; University Scholarship and Residential Scholarship (FSU, Admissions), Fall 1997 – Spring 1999.
- Selected for FSU's Honors Program; Fall 1997 – Spring 1999.
- Honor Society Memberships: Sigma Pi Sigma (Physics), Spring 1999; Kappa Mu Epsilon (Mathematics), Spring 1999; Phi Eta Sigma (Freshman), Spring 1998; National Honor Society (High School), Spring 1996.
- Advanced Placement Scholar awarded by the College Board for performance on Advanced Placement Examinations; 1997.

Membership in Professional Societies

- American Physical Society (APS)
    - Topical Group in Gravitation
    - Forum on Education
    - Forum on Graduate Student Affairs
- Institute of Electrical & Electronics Engineers (IEEE)
    - IEEE Signal Processing Society

Publications

- A. L. Stuver, L. S. Finn, "A First Comparison of SLOPE and Other LIGO Burst Event Trigger Generators," *Class. Quantum Grav.* **23**, S733—S740 (2006) gr-qc/0609110.

- A. L. Stuver, L. S. Finn, "GravEn: Software for the Simulation of Gravitational Wave Detector Network Response," *Class. Quantum Grav.* **23**, S799—S807 (2006) gr-qc/0609109.
- J. W. C. McNabb, M. Ashley, L. S. Finn, E. Rotthoff, A. Stuver, T. Summerscales, P. Sutton, M. Tibbits, K. Thorne, K. Zaleski, "Overview of the BlockNormal Event Trigger Generator," *Class. Quantum Grav.* **21**, S1705 – S1710 (2004) gr-qc/0404123.
- M. Beilby, G. González, M. Duffy, A. Stuver, J. Poker, "Development of a Double Pendulum for Gravitational Wave Detectors," *GRAVITATIONAL WAVES: Third Edoardo Amaldi Conference*, **523** (AIP Press, June 2000) gr-qc/9911027.

LIGO Collaboration Publications

- B. Abbott et al., "Search for gravitational-wave bursts in LIGO data from the fourth science run," submitted to *Class. Quantum Grav.* (2007) arXiv:0704.0943v1 [gr-qc].
- B. Abbott et al., "Searching for a Stochastic Background of Gravitational Waves with LIGO," (2007) astro-ph/0608606.
- B. Abbott et al., "Search for Gravitational Wave Bursts in LIGO's Third Science Run," *Class. Quantum Grav.* **23**, S29-S39 (2006) gr-qc/0511146.
- B. Abbott, et al., "Upper limits from the LIGO and TAMA detectors on the rate of gravitational-wave bursts," *Phys. Rev. D* **73**, 102002 (2006) gr-qc/0507081.
- B. Abbott et al., "Search for Gravitational Waves from Binary Black Hole Inspirals in LIGO Data," *Phys. Rev. D* **73**, 062001 (2006) gr-qc/0509129.
- B. Abbott et al., "Upper Limits on a Stochastic Background of Gravitational Waves," *Phys. Rev. Lett.* **95**, 221101 (2005) astro-ph/0507254.
- B. Abbott, et al., "First all-sky upper limits from LIGO on the strength of periodic gravitational waves using the Hough transform," *Phys. Rev. D* **72**, 102004 (2005) gr-qc/0508065.
- B. Abbott, et al., "Search for Gravitational Waves from Primordial Black Hole Binary Coalescences in the Galactic Halo," *Phys. Rev. D*, **72**, 082002 (2005) gr-qc/0505042.
- B. Abbott, et al., "Search for gravitational waves from galactic and extra-galactic binary neutron stars," *Phys. Rev. D*, **72**, 082001 (2005) gr-qc/0505041.
- B. Abbott, et al., "Upper limits on gravitational wave bursts in LIGO's second science run," *Phys. Rev. D*, **72**, 062001 (2005) gr-qc/0505029.
- B. Abbott, et al., "A Search for Gravitational Waves Associated with the Gamma Ray Burst GRB030329 Using the LIGO Detectors," *Phys. Rev. D*, **72**, 042002 (2005) gr-qc/0501068.
- B. Abbott, et al., "Limits on gravitational wave emission from selected pulsars using LIGO data," *Phys. Rev. Lett.*, **94**, 181103 (2005) gr-qc/0410007.
- B. Abbott, et al., "Detector description and performance for the first coincidence observations between LIGO and GEO," *Nucl. Instrum. Methods A*, **517**, 154 – 179 (2004) gr-qc/0308043.
- B. Abbott, et al., "First upper limits from LIGO on gravitational wave bursts," *Phys. Rev. D*, **69** 102001 (2004) gr-qc/0312056.
- B. Abbott, et al., "Setting upper limits on the strength of periodic gravitational waves from PSR J1939+2134 using the first science data from the GEO 600 and LIGO detectors," *Phys. Rev. D*, **69** 082004 (2004) gr-qc/0308050.
- B. Allen, G. Woan, et al. "Upper limits on the strength of periodic gravitational waves from PSR J1939+2134," *Class. Quantum Grav.*, **21** S671 – S676 (2004) gr-qc/0311023.
- B. Abbott, et al., "Analysis of First LIGO Science Data for Stochastic Gravitational Waves," *Phys. Rev. D*, **69** 122004 (2003) gr-qc/0312088.
- B. Abbott, et al., "Analysis of LIGO data for gravitational waves from binary neutron stars," *Phys. Rev. D*, **69** 122001 (2003) gr-qc/0308069.

Invited Talks

- A. Stuver, "Burst Gravitational Wave Data Analysis Methods: Design, Development and Comparison," Seminar presented at the LIGO Livingston Observatory, 3 April 2007, (Livingston, LA).
- A. Stuver, "Graduate Student Opportunities at Penn State: The Center for Gravitational Wave Physics," Presented at the Alumni Career Expo, 21 October 2005, 12 October 2004, 17 October 2003, 25 October 2002, and 2 November 2001, (Frostburg State University, MD).
- A. Stuver, "On Gravitational Waves," Presented at the Department of Physics & Engineering Annual Banquet, 24 April 2004, (Frostburg State University, MD).

Contributed Talks

- A. Stuver, "A Comparison of Burst Gravitational Wave Detection Algorithms for LIGO," Presented at the 10th Gravitational Wave Data Analysis Workshop (GWDAW10), 15 December 2005, (University of Texas at Brownsville, TX).
- A. Stuver, "GravEn: A Gravitational Wave Software Simulation Tool," Presented at GWDAW10, 15 December 2005, (University of Texas at Brownsville, TX).
- A. Stuver, "ETG Sensitivity and Efficiency to Simulations: BlockNormal and SLOPE," Presented at the August 2005 LIGO Science Collaboration (LSC) Meeting, 17 August 2005, (LIGO Hanford Observatory, WA), LIGO-G050331-00-Z.
- A. Stuver, "A First Look at Burst ETG False Triggers: BlockNormal and SLOPE," Presented at the March 2005 LSC Meeting, 23 March 2005, (LIGO Livingston Observatory, LA), LIGO-G050110-00-Z.
- A. Stuver, "SLOPE: A MATLAB Revival," Presented at the August 2004 LIGO Science Collaboration (LSC) Meeting, 19 August 2004, (LIGO Hanford Observatory, WA), LIGO-G040316-00-Z.
- A. Stuver, "GravEn Simulation Engine," Presented at the March 2004 LSC Meeting, 18 March 2004, (LIGO Livingston Observatory, LA), LIGO-G040062-00-Z.
- A. Stuver, "Gravitational Wave Simulations," Presented at the Center for Gravitational Wave Physics (CGWP) Lunch Seminar, 17 December 2003, (Penn State).
- A. Stuver, "First Application of BlockNormal to LIGO Science Data," Presented at the CGWP Lunch Seminar, 14 May 2003, (Penn State).
- A. Stuver, "BlockNormal: A Change Point Analysis for Burst Gravitational Waves," Presented at the CGWP Lunch Seminar, 2 October 2002, (Penn State).
- A. Stuver, "BlockNormal: A Change Point Analysis for Burst Gravitational Waves," Presented at the August 2002 LSC Meeting, 20 August 2002, (LIGO Hanford Observatory, WA), LIGO-G020310-00-Z.
- A. Stuver, M. Beilby, A. Glancy, G. González, "Measurement of Motion Transfer Functions for Mirror Suspensions," Presented at The American Physical Society April Meeting, 28 April-1 May 2001, (Washington. D.C.).
- A. Stuver, G. González, M. Beilby, et al., "Piezoelectric Actuator Characterizations for Isolation Testing of Suspension Systems," Presented at The Fourth Eastern Gravity Meeting, 8-9 April 2000, (Duquesne University, PA).

Computer Skills

- Extensive programming experience in MATLAB® and associated toolboxes.
- Some experience in C/C++, Fortran 77/90 and BASIC.
- Functional with Condor® and Sun Grid Engine software for distributed resource management.
- Experienced in HTML.
- Functional in the Unix/Linux, Windows, MAC OS and Solaris operating systems.
- Extensive experience in all Microsoft Office components, Emacs, and TeX/LaTeX.

References

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Professor of Physics

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