

James R. Holliday

Curriculum Vitae

ADDRESS

Department of Physics
University of California
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EDUCATION

M.S. (Physics) – *University of Illinois*
B.S. (Physics) – *University of Kansas*

Urbana-Champaign, IL (2000)
Lawrence, KS (1998)

RESEARCH

- Earthquake forecasting and simulation.
- Forecast verification and optimization.
- Time series analysis and forecasting of complex systems.

TEACHING

Physics 7A (UC Davis) - Introductory Physics I (lab)	Spring Quarter, 2003
Physics 7A (UC Davis) - Introductory Physics I (lab)	Winter Quarter, 2003
Physics 7A (UC Davis) - Introductory Physics I (lab)	Fall Quarter, 2002
Physics 150 (UIUC) - Physics for Non-Scientists (lecture)	Spring Semester, 2000
Physics 150 (UIUC) - Physics for Non-Scientists (lecture)	Fall Semester, 1999

MEMBERSHIPS

American Geophysical Union (AGU)
American Physical Society (APS)
American Institute of Physicists (AIP)
MadSci Network “Ask-A-Scientist”

ΣΠΣ - National Physics Honors Society
National Society of Physics Students (SPS)
Golden Key National Honors Society

AWARDS

NASA Earth System Science Fellowship	2006
Professors for the Future Nomination	2006
NASA Earth System Science Fellowship	2005
Professors for the Future Nomination	2005
NASA Earth System Science Fellowship	2004
Undergraduate Research Award	1997
REU Grant	1997
APS Regional Conference Student Presentation Award	1996
Undergraduate Research Award	1996
REU Grant	1996
J. Michael Young Award	1996

PUBLICATIONS

1. J. R. Holliday, J. B. Rundle, and D. L. Turcotte. [Earthquake Forecasting and its Verification](#), *Encyclopedia of Complexity and Systems Science*, Springer Press, 2007.
2. D. L. Turcotte, J. R. Holliday, and J. B. Rundle. [BASS, an alternative to ETAS](#), *Geophys. Res. Lett.*, 34:L12303, 2007.

3. J. R. Holliday, C. C. Chen, K. F. Tiampo, J. B. Rundle, D. L. Turcotte, and A. Donnellan. [A RELM earthquake forecast based on pattern informatics](#), *Seis. Res. Lett.*, 78:87–93, 2007.
4. J. R. Holliday, J. B. Rundle, D. L. Turcotte, W. Klein, K. F. Tiampo, and A. Donnellan. [Space-Time Clustering and Correlations of Major Earthquakes](#), *Phys. Rev. Lett.*, 97:238501, 2006.
5. J. R. Holliday, J. B. Rundle, K. F. Tiampo, and D. L. Turcotte. [Using Earthquake Intensities To Forecast Earthquake Occurrence Times](#), *Nonlinear Processes in Geophysics*, 13:585–593, 2006.
6. C. C. Chen, J. B. Rundle, H. C. Li, J. R. Holliday, D. L. Turcotte, and K. F. Tiampo. [Critical point theory of earthquakes: Observation of correlated and cooperative behavior on earthquake fault systems](#), *Geophys. Res. Lett.*, 33:L18302, 2006.
7. K. F. Tiampo, J. B. Rundle, W. Klein, and J. R. Holliday. [Forecasting Rupture Dimension Using The Pattern Informatics Technique](#), *Tectonophysics*, 424:367–376, 2006.
8. K. F. Tiampo, J. B. Rundle, W. Klein, J. R. Holliday, J. S. Sá Martins, and C. D. Ferguson. Ergodicity in Natural Earthquake Fault Networks, *Phys. Rev. E*, in press.
9. K. Z. Nanjo, J. R. Holliday, C. C. Chen, J. B. Rundle, and D. L. Turcotte. [Forecasting the Locations of Future Large Earthquakes, Using Pattern Informatics: A Review](#), *Proc. Inst. Stat. Math.*, 54:281–297, 2006.
10. K. Z. Nanjo, J. B. Rundle, J. R. Holliday, and D. L. Turcotte. [Pattern Informatics and its Application for Optimal Forecasting of Large Earthquakes in Japan](#), *Pure Appl. Geophys.*, 2006.
11. K. Z. Nanjo, J. R. Holliday, C. C. Chen, J. B. Rundle, and D. L. Turcotte. [Application of a modified Pattern Informatics method to forecasting the locations of future large earthquakes in the central Japan](#), *Tectonophysics*, 424:351–366, 2006.
12. J. R. Holliday, J. B. Rundle, K. F. Tiampo, W. Klein, and A. Donnellan. [Systematic procedural and sensitivity analysis of the pattern informatics method for forecasting large \(\$M \geq 5\$ \) earthquake events in southern California](#), *Pure Appl. Geophys.*, 2006.
13. J. R. Holliday, J. B. Rundle, K. F. Tiampo, W. Klein, and A. Donnellan. [Modification of the pattern informatics method for forecasting large earthquake events using complex eigenvectors](#). *Tectonophysics*, 413:87–91, 2006.
14. J. R. Holliday, K. Z. Nanjo, K. F. Tiampo, J. B. Rundle, and D. L. Turcotte. [Earthquake forecasting and its verification](#). *Nonlinear Processes in Geophysics*, 12:965–977, 2005.
15. C. C. Chen, J. B. Rundle, J. R. Holliday, K. Z. Nanjo, D. L. Turcotte, S. C. Li, and K. F. Tiampo. [The 1999 chi-chi, Taiwan, earthquake as a typical example of seismic activation and quiescence](#). *GRL*, 32:L22315, 2005.
16. R. Ammar *et al.*, [Measurement of the Product Branching Fraction \$B\(c \rightarrow \Theta_c X\) \cdot B\(\Theta_c \rightarrow \Lambda X\)\$](#) , *Phys. Rev. D* 62:092007, 2000.

PROCEEDINGS, TALKS, and POSTERS

1. [Space-Time Clustering and Correlations of Earthquakes](#), *APS March Meeting*; March 5-9, 2007; Denver, Colorado, USA.
2. Session Chair: [Applications to Networks and Organized Systems \(Session W22\)](#), *APS March Meeting*; March 5-9, 2007; Denver, Colorado, USA.
3. Invited Author: Earthquake Forecasting and its Verification, *Encyclopedia of Complexity and Systems Science*, Springer Press.
4. [The Critical Point Theory of Earthquakes: Observation of Correlated and Cooperative Behavior on Earthquake Fault Systems](#), *AGU Fall Meeting*; December 11-15, 2006; San Francisco, California, USA.

5. [Using Earthquake Intensities To Forecast Earthquake Occurrence Times](#), *AGU Fall Meeting*; December 11-15, 2006; San Francisco, California, USA.
6. [Assimilating Data Into Virtual California Models by a Method of Data Scoring](#), *AGU Fall Meeting*; December 11-15, 2006; San Francisco, California, USA.
7. Session Chair: [The Science of Forecasting in Complex Earthquake Fault Systems II Posters \(S13A\)](#), *AGU Fall Meeting*; December 11-15, 2006; San Francisco, California, USA.
8. [A Modified Pattern Informatics \(PI\) Method: Application to Forecasting the Locations of Future Large Earthquakes in Central Japan](#), *AGU Fall Meeting*; December 11-15, 2006; San Francisco, California, USA.
9. Session Chair: [The Science of Forecasting in Complex Earthquake Fault Systems I \(S12A\)](#), *AGU Fall Meeting*; December 11-15, 2006; San Francisco, California, USA.
10. [Improving Occurrence Time Estimates For Future Large Earthquakes Using Ensemble PI Methods](#), *5th ACES International Workshop*; April 4-6, 2004; Maui, Hawaii, USA.
11. [A RELM earthquake forecast based on pattern informatics](#), *AGU Fall Meeting*; December 5-9, 2005; San Francisco, California, USA.
12. Session Chair: [Forecasting and Forecast Verification in Complex Earth Systems II \(NG23C\)](#), *AGU Fall Meeting*; December 5-9, 2005; San Francisco, California, USA.
13. [From Tornadoes to Earthquakes: Forecast Verification for Binary Events Applied to the 1999 Chi-Chi, Taiwan, Earthquake](#), *AGU Fall Meeting*; December 5-9, 2005; San Francisco, California, USA.
14. Session Chair: [Forecasting and Forecast Verification in Complex Earth Systems I \(NG21A\)](#), *AGU Fall Meeting*; December 5-9, 2005; San Francisco, California, USA.
15. [Earthquake Forecasting Using Pattern Informatics](#), *SCEC 2005 Annual Meeting*; September 11-14, 2005; Palm Springs, California, USA.
16. [Modification of the Pattern Informatics Method for Forecasting Large Earthquake Events Using Complex Eigenvectors](#), *AGU Fall Meeting*; December 13-17, 2004; San Francisco, California, USA.
17. [Pattern Informatics Approach to Earthquake Forecasting](#), *4th APEC Cooperation for Earthquake Simulation (ACES) Workshop*; July 9-14, 2004; Beijing, China.
18. [Evaluation and Development of the Pattern Informatics Method of Earthquake Forecasting](#), *AGU Fall Meeting*; December 8-12, 2003; San Francisco, California, USA.
19. [Measurement of the Inclusive Branching Fraction of Charmed Baryons into \$\Lambda\$](#) , *APS/AAPT Joint April Meeting Program*; April 18-21, 1988; Columbus, Ohio, USA.

WORK HISTORY

University of California

Research Assistant

Optimized and parallelized Pattern Informatics earthquake forecasting code. Developed new methods of geophysical time series forecasting and analysis.

Davis, CA

06/03 – Present

University of California

Teaching Assistant

Taught introductory physics lab to non-physics majors. Received highest end-of-quarter evaluations from my students.

Davis, CA

10/02 – 06/03

ISS, Inc.

Scientific Programmer

Created commercial software for analyzing and displaying data taken from near-infrared non-invasive tissue oximeters. Chaired weekly programmers' meeting. Member of ISO9000 planning group.

Champaign, IL

08/01 – 07/02

University of Illinois*Research Assistant*

Created and maintained simulation and monitoring software for the extremely-high-speed extrapolation digital trigger module: XTRPSim and XTRPMon.

Urbana-Champaign, IL

05/00 – 05/01

University of Illinois*Teaching Assistant*

Taught introductory level physics lecture to non-science majors. Created original homework problems and some curriculum.

Urbana-Champaign, IL

09/99 – 05/00

Wilson Laboratory of Nuclear Studies*Data Analyst*

Performed analysis of the product branching fraction $B(c \rightarrow \Theta_c X) \cdot B(\Theta_c \rightarrow \Lambda X)$ resulting in multiple collaboration presentations and a published paper.

Ithaca, NY

08/98 – 06/99

University of Kansas*Research Assistant*

Performed original research through internship at Cornell University on properties of various charmed particles. Created and maintained web site for the University of Kansas' high energy solar neutrino project, measured and calibrated co-axial cable to specification, and created 3D models of experimental antenna using CAD software. Created graphical representations of the Cassini spacecraft's projected passes around Titan. Researched and calculated properties of various stellar gases.

Lawrence, KS

01/96 – 08/98

OUTREACH**Science Demonstrations***Volunteer Teacher*

Created science curriculum and performed educational demonstrations for preschool children.

Davis, CA

06/06 – 08/06

Math and Science Tutoring*Volunteer Tutor*

Tutored middle and high school students in all areas of math, chemistry, and physics.

Champaign, IL

01/02 – 07/02

Orpheum Children's Science Museum*Volunteer Board Member*

Designed and constructed hands-on exhibits to explain and encourage learning in geography, anatomy, and electronics. Member of planning commission, exhibits committee, and board of directors.

Champaign, IL

10/99 – 07/02

Exploratorium*Volunteer Assistant*

Demonstrated basic principles of physics to children through toys and projects to be made at home. Toys and projects required materials that could be found in the home and demonstrated such principles as Newton's 3rd Law, Bernoulli's Principle, buoyancy, and static electricity.

San Francisco, CA

06/98 – 08/98

Dark At The Top Of The Hill*Volunteer*

Assisted in various demonstrations and skits during the university sponsored science open house for young children.

Lawrence, KS

10/97

ASSORTED STATISTICS

Birth Date: 23 May 1976

Number of Children: ~ 2

Number of Wives: 1

Erdős Number: $n \leq 6^*$ Bacon Number: $n \leq 3^\dagger$ Favorite Number: $e^{i\pi} + 1$ **END NOTES**

- * James Holliday has co-authored with Bill Klein
Bill Klein has co-authored with Dietrich Stauffer
Dietrich Stauffer has co-authored with Benoit Mandelbrot
Benoit Mandelbrot has an Erdős number $n \leq 3$
- † James Holliday was in *No Holds Barred* (1989) with Hulk Hogan
Hulk Hogan was in *Spy Hard* (1996) with Marcia Gay Harden
Marcia Gay Harden was in *Mystic River* (2003) with **Kevin Bacon**