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Biographical Information

Date of Birth: Sept. 1983
Place of Birth: North Tonawanda, New York, USA
Citizenship: United States of America

Education

Ph.D., Astronomy	University of Virginia	Aug. 2011
M.S., Astronomy	University of Virginia	May 2008
B.S., Astronomy & Astrophysics with Honors	Pennsylvania State University	May 2006
B.S., Physics	Pennsylvania State University	May 2006

Research Appointments

Postdoctoral Scholar	McGill University Physics Dept.	Sept. 2011–present
	<ul style="list-style-type: none">○ Large-area pulsar surveys, pulsar timing, database management and data mining, radio observations of magnetars○ Supervised by Prof. Victoria Kaspi	
Graduate Research Assistant	University of Virginia Dept. of Astronomy National Radio Astronomy Observatory	Sept. 2006–Aug. 2011
	<ul style="list-style-type: none">○ Globular cluster pulsar searches with emphasis on millisecond pulsars, large-area pulsar surveys, pulsar timing, globular cluster pulsar populations, pulsar instrumentation○ Supervised by Dr. Scott M. Ransom	

Undergraduate Research Assistant Pennsylvania State University Sept. 2002–May 2006
 Dept. of Astronomy & Astrophysics

- Quasar absorption line spectroscopy, photo-ionization modeling, statistical and physical properties of weak Mg II absorption system
- Supervised by Prof. Jane C. Charlton

Teaching Experience

Co-instructor McGill University Jan. 2012–May 2012
 Physics Dept.

- Taught a graduate seminar on high energy astrophysics with one professor and two other postdoctoral scholars
- Independently prepared lectures and homework assignments for selected classes and topics

Academic Tutor University of Virginia Oct. 2009–May 2011
 Athletic Dept.

- Led small group and individual tutoring sessions for introductory undergraduate courses in astronomy and physics

Teaching Assistant University of Virginia Sept. 2006–May 2008
 Dept. of Astronomy

- Ran nightly astronomy labs and review sessions for a variety of introductory and intermediate level undergraduate courses in astronomy
- Head TA (Fall 2007)

Course Instructor University of Virginia July 2007
 Dept. of Astronomy

- Sole instructor for *Introduction to Stars and Galaxies*
- Independently developed and administered lesson plans, lectures, and exams for a class of 21 students
- Used collaborative and interactive teaching techniques, including group discussions, hands-on demonstrations, and a real-time student response system (iClickers)
- Attendee of three teaching workshops at American Astronomical Society conferences held by the Center for Astronomy Education
- Substitute lecturer on over a half-dozen occasions for undergraduate astronomy courses at all levels

Public Outreach Experience

NANOGrav & IPTA Sept 2012–present

- Director of outreach and education for the North American Nanohertz Observatory for Gravitational Waves (NANOGrav), a collaboration of astronomers and physicists from over a dozen institutions throughout the U.S. and Canada
- Developing educational materials, online content, podcast series, and social media for both public and professional outreach and education

Astronomy Outreach Committee McGill University Sept 2011–present
Physics Dept.

- Co-founded and co-chair of an astronomy outreach group currently consisting of over a dozen members (postdoctoral scholars, and graduate and undergraduate students)
- Took initiative to start several activities, including elementary school “astronomy days”, a podcast series, monthly public lectures and observing nights, a public outreach Facebook page, high school lectures, and several special outreach events (e.g. for the transit of Venus in summer 2011)
- “Astronomy days” consist of hands-on astronomy-themed activities designed to teach core science concepts to elementary and middle school students
- Developed connections with other science and astronomy outreach groups at McGill University and in the greater Montréal area

The Pulsar Search Collaboratory National Radio Astronomy July 2008–present
Observatory

- The PSC involves high school students and teachers in real astronomical research by looking for new pulsars in data collected by the Green Bank Telescope
- Founding member
- Helping to run summer workshops for students and teachers, visiting high schools to recruit students and support existing teams, giving on-line lectures on pulsar astronomy
- Wrote two manuals that serve as the primary reference for students and teachers

Dark Skies, Bright Kids University of Virginia July 2009–present
Dept. of Astronomy

- The goal of DSBK is to develop a passion for science in students at rural, under-served elementary schools by engaging them in fun, hands-on astronomy-themed activities
- Founding member
- Developing over a dozen educational activities with accompanying lesson plans
- Running planetarium shows using StarryNight® Small Dome and a portable planetarium
- Will be working with DSBK to distribute a bi-lingual English/French astronomy picture book in Canada (originally developed by DSBK members in English/Spanish)

Significant Contributing Author

- Antoniadis, J., Freire, P. C. C., Wex, N., Tauris, T. M., **Lynch, R. S.**, et al. 2013, “A Massive Pulsar in a Compact Relativistic Binary”, *Science*, 340, 6131
- Boyles, J., **Lynch, R. S.**, Ransom, S. M., et al. 2012, “The Green Bank Telescope 350 MHz Drift-scan Survey I: Survey Observations and the Discovery of 13 Pulsars”, *ApJin* press, arXiv:1209.4293
- Rosen, R. and 61 co-authors including **Lynch, R. S.**, “The Pulsar Search Collaboratory: Discovery and Timing of Five New Pulsars”, 2012, *ApJin* press, arXiv:1209.4108
- Boyles, J., Lorimer, D. R., Turk, P. J., Mnatsakanov, R., **Lynch, R. S.**, Ransom, S. M., Freire, P. C., & Belczynski, K., “Young Radio Pulsars in Galactic Globular Clusters”, *ApJ*, accepted, arXiv:1108.4402
- Rosen, R., Heatherly, S. A., McLaughlin, M. A., **Lynch, R. S.**, Kondratiev, V. I., Boyles, J. R., Wilson, M. T., Lorimer, D. R., & Ransom, S. M. 2010, “The Pulsar Search Collaboratory”, *Astronomy Education Review*, 9, 10106-1
- Archibald, A. M. and 17 co-authors including **Lynch, R. S.** 2009, “A Radio Pulsar/X-ray Binary Link”, *Science*, 324, 1411
- Milutinović, N., Misawa, T., **Lynch, R. S.**, and six co-authors 2007, “A catalogue of absorption lines in eight Hubble Space Telescope/STIS E230M 1.0 < z < 1.7 quasar spectra”, *MNRAS*, 382, 1094
- Mshar, A. C., Charlton, J. C., **Lynch, R. S.**, Churchill, C., & Kim, T.-S. 2007, “The Kinematic Evolution of Strong Mg II Absorbers”, *ApJ*, 669, 135
- Milutinović, N., Rigby, J. R., Masiero, J. R., **Lynch, R. S.**, Palma, C., & Charlton, J. C. 2006, “The Nature of Weak Mg II Absorbing Structures”, *ApJ*, 641, 190
- Narayanan, A., Charlton, J. C., Masiero, J. R., & **Lynch, R.** 2005, “A Survey of Analogs to Weak Mg II Absorbers in the Present”, *ApJ*, 632, 92

Supervisory Experience

Graduate summer student co-supervisor	McGill University Physics Dept.	May. 2012–Aug 2012
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- Acted as co-supervisor (along with Prof. Victoria Kaspi) to a graduate student from West Virginia University while on a summer exchange at McGill
- The student worked on projects relating to the PALFA pulsar survey, including pulsar timing

High school summer student supervisor	McGill University Physics Dept.	July 2012
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- Supervisor to two high school summer students work with Prof. Victoria Kaspi
- The students were instructed in basic topics in astronomy and searched for pulsars in data from the GBNCC pulsar survey

- The students discovered 21 new pulsars, including three millisecond pulsars, almost doubling the number of pulsars found in the survey at that time

Scientific Lectures

<i>New MSPs from the PALFA Survey</i>	Jan. 2013
Physical Applications of Millisecond Pulsars	Aspen Center for Physics
<i>The Hunt for New Pulsars with the Green Bank Telescope</i>	Aug. 2012
Invited talk, International Astronomical Union Symposium No. 291	Beijing, China
<i>The Green Bank North Celestial Cap Pulsar Survey</i>	June 2012
International Pulsar Timing Array Science Meeting	Kiama, Australia
<i>The Green Bank North Celestial Cap Pulsar Survey</i>	May 2012
Center for Research in Astrophysics of Québec Annual Meeting	Quebec City, Quebec
<i>New MSPs Discovered in Large Area Surveys</i>	May 2012
NANOGrav Science Seminar	West Virginia University
<i>An Update on Recent GBT Pulsar Searches</i>	May 2012
Green Bank Science Lunch	Green Bank Observatory
<i>The Hunt for New and Interesting Pulsars with the Green Bank Telescope</i>	Aug. 2011
Dissertation Defense	University of Virginia
<i>The Globular Cluster Pulsar Population</i>	March 2011
The Fab Five Fest Pulsar Conference	Arecibo Observatory
<i>Measuring the Mass of a Globular Cluster MSP</i>	Jan. 2011
Graduate Symposium	University of Virginia
<i>The Study of Globular Cluster Pulsars Using the Green Bank Telescope</i>	Jan. 2011
215 th Meeting of the American Astronomy Society	Washington, D.C.
<i>Recent Results from Pulsar Searches in Globular Clusters</i>	Dec. 2010
Special Seminar	McGill University
<i>New Pulsars Discovered with the GBT</i>	Jan. 2010
Graduate Symposium	University of Virginia
<i>Searching Globular Clusters for New Pulsars</i>	Jan. 2009
Graduate Symposium	University of Virginia

Conference Proceedings and Abstracts

- **Lynch, R. S.**, 2013, “The Hunt for New Pulsars with the Green Bank Telescope”, IAU Symposium, 291, 41
- **Lynch, R. S.**, Boyles, J. R., Lorimer, D. R., Mnatsakanov, R., Turk, P. J., & Ransom, S. M. 2011, “Non-Recycled Pulsars in Globular Clusters”, arXiv:1101.0841
- **Lynch, R.** 2011, “A Study of Globular Cluster Pulsars Using the Green Bank Telescope”, Bulletin of the American Astronomical Society, 43, #215.03
- Carlberg, J. K., Johnson, K., **Lynch, R.**, and 19 co-authors 2011, “Dark Skies, Bright Kids: Year 2”, Bulletin of the American Astronomical Society, 43, #158.05
- **Lynch, R.**, Ransom, S. M., Lorimer, D., & Boyles, J. 2010, “A Census of Globular Cluster Millisecond Pulsars”, Bulletin of the American Astronomical Society, 42, #453.03
- Zasowski, G. and 15 co-authors including **Lynch, R.** 2010, “Dark Skies, Bright Kids – Astronomy Education and Outreach in Rural Virginia”, Bulletin of the American Astronomical Society, 42, #445.01
- **Lynch, R. S.**, & Charlton, J. C. 2005, “ Physical Properties of Weak MgII Absorbers at $z \sim 2$ ”, Bulletin of the American Astronomical Society, 37, #120.13
- **Lynch, R.**, Charlton, J., Kim, T.-S., & Carswell, R. 2004, “ A Survey of Weak MgII Absorbers at Redshift Two”, Bulletin of the American Astronomical Society, 36, #145.03

Honors and Awards

Douglas G. and Regina C. Evans Award for Research Achievement	Pennsylvania State University	May 2006
Physics Honor Society	Society of Physics Students	Sept. 2004–May 2006
Golden Key Honor Society	Pennsylvania State University	Oct. 2004–May 2006
Society of Collegiate Scholars	Pennsylvania State University	Sept. 2005–May 2006

Research and Teaching Grants

AST-090769 Co-investigator	National Science Foundation	2009–2011 US\$152 096 (US\$20 000 to R. S. Lynch)
GBT Student Support Program Primary investigator	National Radio Astronomy Observatory	2008–2009 US\$27 400
Graduate Summer Student Program	National Radio Astronomy Observatory	2007 US\$6 200

Teaching Assistantship	University of Virginia	2006–2008
	Dept. of Astronomy	US\$18 500/yr for two years

Accepted Observing Proposals

Principal Investigator

- “Long Term Timing of PSR J0348+0432: A Unique and Powerful Gravitational Laboratory”, Arecibo Observatory, P2786
- “Completing a GBT Timing Campaign of 11 Pulsars Discovered in the PALFA Survey”, Green Bank Telescope, GBT13A-424
- “Timing 11 Radio-emitting Neutron Stars Discovered by the PALFA Survey”, Green Bank Telescope, GBT12B-331
- “AE Aquarii: A Pulsar-like White Dwarf?”, Green Bank Telescope, GBT12B-291
- “Deep Searches for Radio Emission from Magnetars”, Green Bank Telescope, GBT12B-265
- “Multi-frequency Follow-up and Positional Improvements for Four New MSPs”, Green Bank Telescope, GBT12A-473
- “Long Term Timing of PSR J0348+0432: An Exquisite Laboratory for Testing Extreme Physics”, Arecibo Observatory, P2650
- “Measuring Shapiro Delay in the Globular Cluster Millisecond Pulsar NGC 6544B”, Green Bank Telescope, GBT11B-044
- “Searching for Pulsars in Ten Globular Clusters Using GUPPI2”, Green Bank Telescope, GBT11A-029
- “Measuring Shapiro Delay in a Globular Cluster Millisecond Pulsar”, Green Bank Telescope, GBT10C-067
- “Long-term Monitoring of Key Drift Scan Pulsars”, Green Bank Telescope, GBT10B-018
- “Exploring the MSP Content of NGC5986”, Green Bank Telescope, GBT10B-017
- “Follow Up of ‘Class B’ Pulsar Candidates from the GBT 350 MHz Drift Scan Survey”, Green Bank Telescope, GBT09C-043
- “Exploring the Benefits of Timing Six New MSPs at L-Band”, Green Bank Telescope, GBT09B-059
- “Searching For New Pulsars in Eight Low Metallicity Globular Clusters”, Green Bank Telescope, GBT09B-045
- “Timing the New GBT 350 MHz Drift Scan Pulsars”, Green Bank Telescope, GBT09B-031
- “Searching for Variability in PSR J0348+04”, Green Bank Telescope, GBT09A-095
- “Follow-Up of a New Mildly Recycled Pulsar”, Arecibo Observatory, P2461
- “Searching for New Pulsars in Six Globular Clusters”, Green Bank Telescope, GBT09A-075

- “Timing of Newly Discovered MSPs in the Globular Cluster NGC6517”, Green Bank Telescope, GBT08C-049
- “Timing the New Pulsars in M22”, Green Bank Telescope, GBT08B-050
- “A Search for New Pulsars in the Globular Cluster Liller 1”, Green Bank Telescope, GBT08B-031
- “Timing of Newly Discovered MSPs in the Globular Cluster NGC6517”, Green Bank Telescope, GBT08A-052

Significant Contributing Investigator

- PI: Stovall, K., “Timing 56 Pulsars Discovered by the Green Bank Telescope”, Green Bank Telescope, GBT13A-458
- PI: Ransom, S., “Continuing the GBT All-Sky 350-MHz Pulsar Survey”, Green Bank Telescope, GBT13A-445
- PI: Ransom, S., “Long Term Timing of 55 Recycled Pulsars in Bulge Globular Clusters”, Green Bank Telescope, GBT13A-438
- PI: Ransom, S., “Timing a Millisecond Pulsar in a Triple System”, Green Bank Telescope, GBT12B-309
- PI: Stairs, I., “Timing A Millisecond Pulsar in a Triple System”, Arecibo Observatory, P2724
- PI: Kaspi, V., “Follow-up of New GBT Drift-scan RRAT Discoveries”, Green Bank Telescope, GBT12A-433
- PI: Ransom, S., “Long Term Timing of 54 Recycled Pulsars in Bulge Globular Clusters”, Green Bank Telescope, GBT12A-391
- PI: Ransom, S., “Continuing the GBT All-Sky 350-MHz Pulsar Survey”, Green Bank Telescope, GBT12A-388
- PI: Stairs, I., “A Short-Period Pulsar Triple System”, Green Bank Telescope, GBT11B-246
- PI: Stovall, K., “Timing Followups of GBNCC and GBT 350MHz Drift Scan Pulsars”, Green Bank Telescope, GBT11B-070
- PI: Freire, P. C., “Timing PSR J0348+0432: A fantastic, new gravitational laboratory”, Arecibo Observatory, P2640
- PI: Ransom, S. M., “Long Term Timing of 55 Recycled Pulsars in Bulge Globular Clusters”, Green Bank Telescope, GBT10C-049
- PI: McLaughlin, M. A., “Observations of J2007+27, a 25-ms pulsar found through distributed computing”, Green Bank Telescope, GBT10B-049
- PI: Ransom, S. M., “Long Term Timing of 55 Recycled Pulsars in Bulge Globular Clusters”, Green Bank Telescope, GBT09C-058
- PI: Ransom, S. M., “A 350-MHz Pulsar Survey of the Northern Celestial Cap”, Green Bank Telescope, GBT09C-057
- PI: Sivakoff, G. R., “Binary Formation in the Sparse Galactic Globular Cluster NGC

- 3021”, Chandra X-ray Observatory/Green Bank Telescope/Hubble Space Telescope, Cycle 11 Proposal 11300893
- o PI: Boyles, J., “Timing new pulsars from the GBT 350-MHz drift-scan survey”, Green Bank Telescope, GBT09A-073
 - o PI: Freire, P. C., “Timing the pulsars in M62, NGC 6544 and NGC 6624”, Green Bank Telescope, GBT09A-003
 - o PI: Freire, P. C., “Searching for Millisecond pulsars in Globular Clusters at 327 MHz”, Arecibo Observatory, P2363

Public Lectures

<i>NANOGrav: A New Way of Looking at the Universe</i>	Oct. 2012
NANOGrav Winter Meeting	Oberlin College
<i>Ryan’s Advice for Giving Technical Talks or How NOT to Put an Audience to Sleep in 45 Minutes or Less</i>	July 2012
Technophile Conference	McGill University
<i>Pulsars: Unlocking the Secrets of Nature’s Extremes</i>	March 2012
Student Lecture	Vanier College
<i>The Dark Skies, Bright Kids Program</i>	April 2011
Public Night	Fan Mountain Observatory
<i>The Pulsar Search Collaboratory: Your Discovery is Here</i>	Nov. 2010
Pulsar Search Collaboratory Recruitment Talk	Rockwood High School, PA
<i>The Pulsar Search Collaboratory: Your Discovery is Here</i>	Nov. 2010
Pulsar Search Collaboratory Recruitment Talk	James River High School, VA
<i>Dark Skies, Bright Kids: Bringing Astronomy to Rural Virginia</i>	July 2010
Richmond Astronomical Society	Richmond, VA
<i>Recent Pulsar Discoveries with the Green Bank Telescope</i>	March 2010
Charlottesville Astronomical Society	Charlottesville, VA
<i>The Cosmic Laboratory</i>	Nov. 2009
Pulsar Search Collaboratory Recruitment Talk	Hedgesville High School, WV
<i>The Pulsar Search Collaboratory: Your Discovery is Here</i>	Oct. 2009
Pulsar Search Collaboratory Recruitment Talk	Blacksburg High School, VA
<i>The Pulsar Search Collaboratory: Your Discovery is Here</i>	Oct. 2009
Pulsar Search Collaboratory Recruitment Talk	Robinson Secondary School, VA
<i>The Dark Side of the Universe: Dark Energy and the Accelerating Expansion</i>	Sept. 2009

Richmond Astronomical Society	Richmond, VA
<i>What's New with Dead Stars?: Recent Pulsar Discoveries</i>	Sept. 2008
Jefferson Institute of Lifelong Learning	Charlottesville, VA
<i>Is Pluto a Planet?</i>	Oct. 2006
Public Night	Fan Mountain Observatory
<i>The Universe of Astronomy</i>	Sept. 2006
John Hopkins Center for Talented Youth	Charlottesville, VA
<i>To The Moon and Beyond!</i>	July 2006
Astrofest (Children's Lecture)	Pennsylvania State University
<i>The Dark Side of the Universe: Dark Matter and Dark Energy</i>	July 2005
Astrofest	Pennsylvania State University

Committee Experience

Graduate Admissions Committee	University of Virginia Dept. of Astronomy	Dec. 2008–April 2010
<ul style="list-style-type: none"> ○ Graduate representative ○ Reviewed applications and recommended students for admission ○ Primary responsibility for organizing the visiting weekend for prospective students 		