

# Rebecca Holmes

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- Ph.D. student in physics (graduation in next 12 months) with experience in quantum optics, laser physics, electronics & detectors, data acquisition, data analysis & scientific programming, human subject research, and interdisciplinary collaboration
- Excellent written and oral communication skills for technical and popular audiences
- Proven record of preparing effective technical proposals and white papers, and editing the work of others
- Strong background in public outreach, from museums to the web

## Education

### The University of Illinois at Urbana-Champaign

June 2011 - Present

*Ph.D. in physics (expected by May 2017)*

Research advisor: Dr. Paul Kwiat, Kwiat Quantum Information Group

Thesis title: "Testing the lower limits of human vision with quantum states of light"

- Awarded a National Science Foundation Graduate Research Fellowship in 2012
- Winner of the 2015 OSA Emil Wolf Outstanding Student Paper Competition
- Taking aerospace engineering classes to earn a Spaceflight Engineering graduate certificate

### The University of North Carolina at Chapel Hill

August 2007 - May 2011

*B.S. in physics, minor in creative writing*

- Undergraduate research
  - UNC Experimental Nuclear and Particle Astrophysics Group (Dr. Reyco Henning and Dr. John Wilkerson): Measured gamma rays from fission products in the atmosphere after the 2011 Fukushima reactor accident, helped build a cosmic ray spark chamber.
  - PROMPT/Skynet robotic telescope network (Dr. Dan Reichart): Photometry of gamma-ray burst afterglows with data from robotic telescopes.
  - P-23 Weak Interactions Team at Los Alamos National Laboratory (Dr. Steve Elliott, MAJORANA collaboration): Quantified effects of microphonic noise on FWHM in germanium detectors.
- Physics editor of *Carolina Scientific*, the UNC undergraduate science magazine (2010-2011)

# Employment

## Morehead Planetarium and Science Center

August 2007 - May 2011

Chapel Hill, NC

Student educator

Presented hundreds of live science demo shows and programs on current issues in science for K-12 school groups and the public. Taught summer science camps and wrote a camp curriculum. Awarded the 2009 Jupiter Ball Fellowship to develop an outreach event about science & art.

# Publications & Presentations

- 2016 International Conference on Quantum Communication, Measurement and Computing in Singapore (accepted for poster)
- 2015 Optical Society of America Frontiers in Optics conference in San Jose, CA (technical talk)
- 2014 Visual Cognition and Human Performance brownbag lunch series at the University of Illinois Psychology Department in Champaign, IL (technical talk)
- 2014 Quantum Information and Measurement conference in Berlin (technical talk)
- 2013 Coherence and Quantum Optics / Quantum Information and Measurement conference in Rochester, NY (poster)
- 2012 Midwest Cold Atom Workshop in Urbana, IL (technical talk)
- 2012 Optical Society of America CLEO:QELS conference in San Jose, CA (technical talk)
- S. MacMullin, G.K. Giovanetti, M.P. Green, R. Henning, R. Holmes, K. Vorren and J.F. Wilkerson, "Measurement of airborne fission products in Chapel Hill, NC, USA from the Fukushima Dai-ichi reactor accident," *Journal of Environmental Radioactivity*, 112, 165-170 (2012).

# Other Activities & Skills

- Mentoring undergraduate physics majors in the Illinois GPS program
- Answering science questions from the public on the Physics Illinois "Ask the Van" website (list of favorite answers at <http://rebeccaholmes.net/askthevan/>)
- Scientific programming: Python, MATLAB, LabVIEW
- Web programming and applications:
  - o HTML, CSS/Sass, Python, Ruby on Rails, PHP, Jekyll, SQL (GitHub: piscisvolans)
  - o Designed and wrote content for the Kwiat research group website at <http://research.physics.illinois.edu/QI/Photonics/>