

REBECCA HOLMES

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I'm a physics graduate student and part-time science writer and editor. I get excited about research, writing, and about the power of communication to achieve goals in science policy—especially human space exploration.

SKILLS

- **Research scientist** with experience in optics, quantum information, data acquisition & control, electronics & detectors, data analysis, and problem-solving
- Proven record of **preparing effective technical proposals and white papers**, and **editing** the work of others
- **Excellent written and oral communication skills** for technical and popular audiences
- Strong background in **public outreach**, from museums to the web

EDUCATION

The University of Illinois at Urbana-Champaign

June 2011 - Present

Graduate student, Department of Physics (Ph.D. expected 2016)

Research advisor: Dr. Paul Kwiat (Kwiat Quantum Information Group)

- Awarded a National Science Foundation Graduate Research Fellowship in 2012
- Research on the interaction of quantum states of light with biological systems, including the human visual system

The University of North Carolina at Chapel Hill

August 2007 - May 2011

Physics (Bachelor of Science) and creative writing (minor)

- Supplemental Instruction leader for the Department of Physics and Astronomy
- Undergraduate research with the UNC Experimental Nuclear and Particle Astrophysics Group, the UNC PROMPT/SkyNet robotic telescope network, and the P-23 Weak Interactions Team at Los Alamos National Laboratory
- Studied at Trinity College in Dublin, Ireland through the Transatlantic Science Student Exchange Program (fall 2009)

EMPLOYMENT

Morehead Planetarium and Science Center

August 2007 - May 2011

Educator

Chapel Hill, NC

- Presented hundreds of live science demo shows and current science programs for K-12 school groups and the public
- Awarded the Jupiter Ball Fellowship to develop a family science event on science and art
- Summer science camp counselor (2008); wrote a "How Things Work" summer camp curriculum for grades 2-4

PUBLICATIONS & PRESENTATIONS

- Visual Cognition and Human Performance 2014 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 X / 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

- Web applications
 - o HTML, CSS, and static sites with Jekyll (GitHub: piscisvolans)
 - o Designed and wrote content for our new research group website at <http://research.physics.illinois.edu/QI/Photonics/>
- Answering science questions from the public on the University of Illinois physics department's "Ask the Van" website (full list of answers at <http://rebeccaholmes.net/askthevan/>)
- Teaching undergraduates about entanglement and experimental quantum optics in PHYS 403 "Modern Experimental Physics" (4 to 6 two-week sessions per year)
- Presenting science demos and talking to visitors at the Urbana farmer's market with the Science at the Market program (2011 - present)
- Physics editor of *Carolina Scientific*, the UNC undergraduate science magazine (2010-2011)
- Selected to represent NASA and the United States at the International Year of Astronomy 2009 Opening Ceremonies at UNESCO headquarters in Paris (January 2009), and planned outreach activities on the UNC-Chapel Hill campus as a NASA Student Ambassador