

REBEKAH GARRIS, PH.D.

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RESEARCH EXPERIENCE

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|----------------|---|----------------|
| 2011 – Present | National Renewable Energy Laboratory
<i>Scientist (2014 – Present)</i>
<i>Postdoctoral Research Scientist (2011 – 2014)</i> <ul style="list-style-type: none">▪ Studied reliability and performance of thin-film CdTe and CIGS photovoltaic (PV) cells▪ Collaborated with several industrial manufacturers to understand and improve thin-film PV panel performance and stability▪ Worked with defect analysis team at PrimeStar Solar and reduced the average number of defects per panel by over 50% in less than one year▪ Characterized PV cell and panel performance using various electrical measurement and imaging techniques: current-voltage analysis, capacitance transient analysis, quantum efficiency analysis, electroluminescence, infrared thermography, photoluminescence▪ Developed chemical bath deposition for alternative buffer layers in CIGS PV cells▪ Wrote analysis software and simulation models in IGOR, LabVIEW, SPICE, and Excel | Golden, CO |
| 2010 | National Renewable Energy Laboratory
<i>Research Participant Program Graduate Student</i> <ul style="list-style-type: none">▪ Conducted electrical testing and quantified current transients and charge extraction in CdTe PV cells | Golden, CO |
| 2010 | University of California, Department of Physics
<i>Graduate Student Researcher</i> <ul style="list-style-type: none">▪ Designed and conducted experiments for electrical characterization, temperature dependence, and degradation studies of thin-film CdTe and nanoparticle PbS PV cells▪ Trained other researchers in lab safety and in proper use of electrical test equipment | Santa Cruz, CA |
| 2007 – 2008 | Lam Research (formerly Novellus Systems, Inc.)
<i>Contracted Employee</i> <ul style="list-style-type: none">▪ Wrote software for and conducted research of time-dependent dielectric-breakdown▪ Assisted development of plasma etch and metallization procedures for sub-40 nm copper structures for application to microchips | San Jose, CA |
| 2007 – 2008 | Lawrence Berkeley National Laboratory
<i>Molecular Foundry User, Nanofabrication Laboratory</i> <ul style="list-style-type: none">▪ Used electron-beam lithography and scanning electron microscopy to fabricate and characterize sub-40 nm copper structures for application to microchips | Berkeley, CA |
| 2004 | Carnegie Institution for Science
<i>Intern, Research Experience for Undergraduates</i> <ul style="list-style-type: none">▪ Research: Computational physics; path-integral Monte Carlo; simulations of dense atomic hydrogen in the Wigner crystal phase | Washington, DC |

EDUCATION

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| 2011 | <i>Ph.D. Physics</i> | University of California | Santa Cruz, CA |
| | <ul style="list-style-type: none">■ Research: Electrical characterization and temperature dependence of PbS PV cells; degradation mechanisms of CdTe PV cells■ Recipient of Chancellor's Dissertation-Year Fellowship (2009 – 2010)■ Advisors: Glenn B. Alers and Sue A. Carter■ Dissertation: "Charge transport in quantum confined structures: Sub-60 nm wires and nanoparticle solar cells," by Rebekah Laurel Graham | | |
| 2008 | <i>M.S. Physics</i> | University of California | Santa Cruz, CA |
| | <ul style="list-style-type: none">■ Research: Measured resistivity in sub-40 nm copper wires and compared with theory■ Recipient of Achievement Rewards for College Scientists Scholarship (2006 – 2007)■ Recipient of Graduate Assistance in Areas of National Need Fellowship (2007 – 2009) | | |
| 2005 | <i>B.S. Creative Studies</i> | University of California | Santa Barbara, CA |
| | <ul style="list-style-type: none">■ Recipient of Regent Scholarship (2001 – 2005)■ Recipient of Summer Undergraduate Research Fellowship (2004)■ Graduated with Physics Research Honors and Physics Academic Honors | | |

SYNERGISTIC ACTIVITIES

- Hands-On PV Experience Workshop, Golden, CO (session leader; 2013, 2014)
- Young Life, Arvada, CO (volunteer leader; 2012 – Present)
- Whiz Kids Tutoring, Denver, CO (volunteer tutor; 2011 – 2012)
- Expanding Your Horizons, Santa Cruz, CA (1-day workshop instructor; 2006, 2007, 2008)