

# Marissa RAMIREZ ZWEIGER

## PERSONAL DATA

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## EDUCATION

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EXPECTED GRADUATION: 2021    Ph.D in NUCLEAR ENGINEERING with an emphasis in COMPUTATIONAL SCIENCE  
**University of California, Berkeley**  
Minor: Mathematics | Advisor: Dr. Rachel SLAYBAUGH

AUG 2015    Bachelor of Arts in MATHEMATICS  
**University of California, Berkeley**  
Senior Project: *The Line-Based Discontinuous Galerkin Method for Equations of Fluid Dynamics*

## WORK EXPERIENCE

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*Current*    Post Bachelor's Research Associate at OAK RIDGE NATIONAL LAB  
SEP 2015    *Radiation Transport Group*

- Perform a detailed convergence analysis using the method of manufactured solutions on the radiation transport models employed in the RNSD code Exnihilo, including Sn, SPn, and MOC.
- Build a library of problems involving reactor analysis, radiation shielding, criticality safety, and/or dosimetry to be used to analyze new methods

MAY-AUG 2015    Undergraduate Researcher UNIVERSITY OF CALIFORNIA, BERKELEY  
*Dr. Per-Olof Persson, Applied Math*

- Developed a line-based discontinuous Galerkin solver for the Convection-Diffusion Equation.
- Prepared a paper ready for publication in the McNair Scholars Journal.
- Funded through the McNair Scholars Program.

NOV 2014 -AUG 2015    Undergraduate Researcher UNIVERSITY OF CALIFORNIA, BERKELEY  
*Dr. Rachel Slaybaugh, Nuclear Engineering*

- Contributed to PyNE, the open source, Python library for nuclear engineers.
- Implemented in PyNE a Chebyshev Rational Approximation Method solver for burnup calculations.
- Mentored undergraduate student in PyNE development.

## SCHOLARSHIPS AND CERTIFICATES

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2014 - 2015	UC Berkeley McNair Scholar	THE MCNAIR SCHOLARS PROGRAM
DEC 2014	Scored in the Top Third of Participants	PUTNAM MATHEMATICAL COMPETITION

## LANGUAGES

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ENGLISH, Native; SPANISH, Fluent; KHMER, Beginning

## COMPUTER SKILLS

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Python, Java, Matlab,  $\text{\LaTeX}$ , C++, UNIX, Git, vim

## SERVICE ACTIVITIES

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2014 - PRESENT	Board Member	OAKLAND CATHOLIC WORKER	Oakland, CA
2009 - PRESENT	Camp Counselor	MID-HUDSON VALLEY CAMPS	Esopus, NY
APR 2016	Judge	SOUTHERN APPALACHIAN SCIENCE FAIR	Knoxville, TN
MAR 2016	Workshop Leader	ANS STUDENT CONFERENCE	Madison, WI
OCT 2015	Volunteer	NUCLEAR SCIENCE WEEK	Knoxville, TN
2014 - 2015	Tutor	SAN QUENTIN STATE PRISON	San Quentin, CA
2011 - 2015	Outreach Volunteer	RAZA RECRUITMENT & RETENTION CENTER	Berkeley, CA
APR 2015	Workshop Leader	ANS MEETING ON MATH & COMP.	Nashville, TN
2010 - 2011	ESL & Math Teacher	THE PONHEARY LY FOUNDATION	Cambodia

## PUBLICATIONS

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M. Ramirez Zweiger, R. N. Slaybaugh. *The Implementation of the Chebyshev Rational Approximation Method for Burnup Calculations Into PyNE*. The UC Berkeley McNair Scholars Journal (2016).

## CONFERENCES & TALKS

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M. Ramirez Zweiger, T. M. Evans, S. P. Hamilton, T. M. Pandya, R. N. Slaybaugh, *Radiation Transport Using Rayleigh Quotient Iteration with Multigrid in Energy Preconditioning*. The Copper Mountain Conference on Iterative Methods; March 24th, 2016; Copper Mountain, CO.

M. Ramirez Zweiger, P. O. Persson. *The Line-Based Discontinuous Galerkin Method for Equations of Fluid Dynamics*. The McNair Scholars Symposium; July 31st, 2015; University of California, Berkeley.