

# Curriculum Vitae

Zachary Glassman

## School Address

Pomona College  
Claremont, CA 91711

## EDUCATION

*Bachelor of Arts, Physics*

Pomona College, Claremont, CA

Expected May 2014

Thesis - High Resolution Spectroscopy and Isotope Invariant Analysis of Diatomic Molecules

*Bachelor of Arts, Mathematics*

Pomona College, Claremont, CA

Expected May 2014

Thesis - Universal Metric Spaces and Applications to General Relativity

GPA: 3.64

## Honors

Steven Chu Award for Best Undergraduate Research at California-Nevada APS 2013- runner up

Tileston Junior Physics Award

Pomona Scholar (twice)

Pomona Freshman Physics Award

National Merit Finalist

## PUBLICATIONS

- *The microwave spectrum of the odd isotope of ytterbium fluoride,  $^{171}\text{YbF}$* - to be submitted December 2013 to Journal of Molecular Spectroscopy.
- *From Urysohn's Universal Metric Space to a Universal Space-Time*- Submitted to Mathematical Structures and Modeling.
- *The rotational spectra, isotope invariant spectral analysis, and Born-Oppenheimer breakdown of  $\text{KF}$* - manuscript in preparation

## PRESENTATIONS AND PROJECTS

- *$\text{YbF}$ , BOB, and the  $e\text{EDM}$ -probing zero with diatomic molecules*-Talk given at 2013 Annual Meeting of the American Physical Society, California-Nevada Section in Sonoma, CA, October 2013.
- *An Introduction to  $\text{\LaTeX}$*  - workshop given to Pomona College students regarding the basics of the  $\text{\LaTeX}$  typesetting language, October 2013.
- *Universal Spaces of Metrics and General Relativity*-Talk given as part of Senior Seminar in Mathematics, November 2013.
- *Spectroscopy and Isotope Invariant Analysis of Diatomic Molecules*- 1 of 4 talks at colloquium on student research given at Pomona Department of Physics and Astronomy, September 2013.
- *Isotopic Invariant Analysis of  $\text{YbF}$  and  $\text{KF}$* - Poster given at 2013 Summer Undergraduate Research Program poster session, September 2013.
- *Dunham invariant analysis of  $\text{YbF}$* - poster given at the Fifteenth European Symposium on Gas Phase Electron Diffraction Conference, Frauenchiemsee, Germany, June 2013.
- *High Resolution Rotational Spectroscopy of Hyperfine Effects in  $\text{YbF}$  and  $\text{RbF}$* - contributed as co-author to poster at the Atomic, Molecular, and Optical division of the German Physical Society, Hannover, Germany, March 2013.
- *High Resolution Rotational Spectroscopy of Zeeman & Hyperfine Effects in  $\text{PbF}$  &  $\text{YbF}$*  - Poster given at 2012 Division of Atomic, Molecular and Optical Physics conference in Anaheim, CA, June 2012.

- *Garduino Automated Gardening System*- Featured article on instructables.com for design and implementation of automated gardening system using arduino micro-controller.  
<http://www.instructables.com/id/Garduino-Automated-Gardening-System/>

## RESEARCH EXPERIENCE

### *Research Intern*

June – Aug 2011

Department of Physics, Yale University, New Haven , CT

- Supervised by Dr. Sidney Cahn and Dr. Simon Mochrie
- Created physics lab module for Yale physics class on Brownian motion
- Used Matlab to interface equipment and perform statistical analysis

### *Research Assistant*

Jan 2012 –

Department of Physics and Astronomy, Pomona College, Claremont CA

- Research in High Resolution Spectroscopy of Diatomic Molecules
- Worked with advisor Prof. Richard Mawhorter at Pomona College
- Worked in lab of Prof. Timothy Steimle at Arizona State University
- Worked in lab of Dr. Jens-Uwe Grabow at Leibniz Universität Hannover

### *Research Assistant*

Sept 2013 –

Department of Mathematics, Pomona College, Claremont CA

- Research in functional analysis on Urysohn Universal Metric Space, including applications to concepts from General Relativity
- Worked with advisor Prof. Asuman Aksoy at Claremont McKenna College

## PROFESSIONAL EXPERIENCE

### *Lab TA- Introductory Physics*

Sept 2011 – May 2012

Department of Physics and Astronomy, Pomona College, Claremont , CA

- Taught proper lab technique and analysis skills
- Evaluated students on lab skills and results
- Graded lab reports

### *Physics Grader*

Sept 2012 –

Department of Physics and Astronomy, Pomona College, Claremont , CA

- Graded upper level Quantum Mechanics
- Graded and gave feedback on a two pass system for freshman potential physics majors

### *L<sup>A</sup>T<sub>E</sub>X Specialist and Quantitative Skills Center (QSC) Fellow*

September 2013 –

- As QSC fellow, mentored in both large and small group sessions.
- L<sup>A</sup>T<sub>E</sub>X specialist for Pomona Mathematics department.

### *Tutor/Mentor*

2008 –

- Tutored students in Knot Theory, Analysis, Algebra, Geometry, Calculus, Basic Math, Introductory Mechanics and Electricity and Magnetism
- Mentored mentally disabled student

## COMPUTER SKILLS

Experienced in Python,C, CUDA, Matlab, Mathematica, L<sup>A</sup>T<sub>E</sub>X, HTML, CSS, Arduino, Word, Excel, Powerpoint, SPFIT/SPCAT(Molecular spectroscopy fitting/prediction programs)

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