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Education

- **University of Wisconsin-Milwaukee** — Milwaukee, WI
  Graduate Studies, Physics — *September 2017 - Present*
- **University of California, Santa Barbara** — Santa Barbara, CA
  B.S., Physics (3.89 GPA, Highest Honors) — *September 2014 - June 2017*
- **Foothill College** — Los Altos Hills, CA
  Transfer Student, Physics (3.50 GPA) — *September 2012 - June 2014*
- **Los Altos High** — Los Altos, CA
  High School Student — *August 2008 - June 2012*

Research Interests

- Compact objects and astrophysical sources of gravitational waves, with emphasis on binary neutron stars and their link to short gamma ray burst emission. Gravitational wave data analysis, focusing on inferring new physics from data. Experimental gravitational wave physics, such as seismic noise cancellation and interferometer control.

Awards & Fellowships

- NSF Graduate Research Fellowship (2017 - Present)
- UCSB Physics Department Highest Academic Honors (June 2017)
- Blanco Fellowship (Summer 2015, LIGO SURF fellowship award)
- UCSB Dean's list (Fall 2014 - Present)
- NSF Science, Math and Engineering (S-STEM) Scholarship (Fall 2013 - Spring 2014)

Research Positions

- **LIGO, The Chinese University of Hong Kong** *Research Assistant, March, 2016 - Present*
  - Continued collaboration with Prof. Tjonnie Li for the CUHK LIGO group while at UWM.
  - My work primarily involves the analysis of gravitational waves from binary neutron star (BNS) mergers. We are currently developing and testing a novel technique for detection of a BNS GW signal using a population of sub-threshold BNS signals by coherently stacking them.
  - Developed machine learning techniques for gravitational wave trigger ranking and detection.
  - Hypothesis testing of strongly lensed gravitational waves events on simulated data.
- **UCSB Department of Physics** *Undergraduate Research Assistant, November 2016 - May 2017*
  - Currently working for Prof. Joseph Incandela for the UCSB High Energy Experimental Physics group.
  - My work involves the data analysis and simulation of signal and noise backgrounds for the Light Dark Matter Experiment (LDMX) in collaboration with SLAC at Stanford University.
- **LIGO Lab, Caltech** *Summer Undergraduate Research Fellow, June 13, 2015 - September 7, 2015*
  - Developed and tested a set of feedforward IIR Wiener filters in order to filter out seismic noise out the LIGO 40m interferometer mode cleaner and arm cavities.
  - The filters reduced seismic noise couplings for the mode cleaner by a factor of 7 at 1.2 Hz and 10 at 3Hz.
  - Measured the noise floor of seismic sensors such as accelerometers using standard methods.
  - Gained useful digital signal processing experience using MATLAB.

- **UCSB Department of Physics** *Undergraduate Research Assistant, January 4, 2015 - June 9, 2015*
  - Investigated the photonic IR properties of a set of silver DNA nano clusters or Ag-DNAs using spectroscopic methods and wetlab techniques. Synthesized the clusters and characterized them using high performance liquid chromatography (HPLC).

Skills

- **Other classes:** C++, Python, UNIX, Quantum Computing, Organic Chemistry.
- **Programming skills:**
  - Proficiency with: Python (NumPy, SciPy, SymPy, LAL, LALSim), C, Mathematica, LaTeX.
  - Have used before: R, C++, MATLAB/Simulink.
- **Data Analysis:**
  - Bayesian inference, parameter estimation, chi-square minimization, Monte Carlo methods, global optimization.
  - Digital signal processing, machine learning and some numerical relativity experience.
- **Lab skills:** Analog and digital circuit design/analysis.
- **Languages:** Spanish (fluent). Japanese (beginner).

Community Service

- **Foothill College Physics Department** *Special Projects in Physics Member, September 24. 2013 - June 6, 2014*
  - Worked in three separate projects: The construction and demonstration of Galileos incline experiment, Galileos water clocks, as well as the assembly of a 15 feet long Pendulum Snake that made it into the 2014 Foothill College Physics Show.
- **Foothill College Physics Show** *Presenter, January 4, 2014 - February 4, 2014*
  - Prepared, performed and presented a set of physics demonstrations for an audience of 25,000 people over the span of two weekends, two shows per day.

Non-refereed Publications

- Feedforward Seismic Noise Cancellation at the 40m Prototype Interferometer, I. Magaña Hernandez, E. Quintero, K. Arai, R. Adhikari. LIGO-DCC T1500195

Conferences/Presentations

- Summer School on Gravitational-Wave Astronomy — Invited Participant, ICTS-TIFR, Bangalore, August 2016. Topics: Post-Newtonian formalism, black hole perturbation theory and GW data analysis.
- 19th Annual Physical Society of Hong Kong— Student Presenter, Hong Kong University, Hong Kong, June 2016. Talk: Feedforward Seismic Noise Cancellation at the 40m Prototype Interferometer.
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) — Student attendee, Washington D.C., November 2015.

Societies/Affiliations

- LIGO Scientific Collaboration (50% membership) CBC Subgroup.
- American Physical Society — Undergraduate Member
- Physical Society of Hong Kong — Student Member
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) — Student Member
- National Society of Hispanic Physicists — Student Member
- Society of Physics Students, UCSB — Member