



# Jacob Bryon

## Curriculum Vitae

*"The thing that doesn't fit is the thing that's the most interesting: the part that doesn't go according to what you expected." - Richard Feynman*

### Education

- 2018–Present **PhD in Applied Physics**, *Princeton University*, NJ, *GPA – N/A*.  
Department of Electrical Engineering, Applied Physics: Quantum Computing and Quantum Simulation
- 2014–2018 **Bachelors in Physics, Honors**, *The University of California*, Berkeley, *GPA – 3.6*.  
Graduate with honors
- Honors Thesis *Effect of Strain on the Charge Density Wave State in Low Dimensional Materials*  
Supervisor Professor Alex Zettl
- Description Thesis explores the influence of strain applied to both quasi-one dimensional and quasi-two dimensional materials, specifically  $\text{NbSe}_2$  and  $\text{NbSe}_3$ . The project focusses on strain's affect on sliding behavior in the charge density wave state.

### Experience

#### Research

- July 2018– Present **Applied Physics Researcher**, ANDREW HOUCK GROUP, Princeton University.  
Graduate Student Research. Research in quantum simulation of condensed matter physics: low dimensional cQED photonic lattices
- May 2015– June 2018 **Condensed Matter Physics Researcher**, ALEX ZETTL GROUP, UC Berkeley.  
Undergraduate Research. Research focused on electrical transport measurements of low dimensional materials, engineering equipment used in experimentation. Worked with machining, cryogenics, electrical measurements.  
Selected Projects:
- Crystal Growth in Carbon Nanotubes
  - Electrical Probe Design and Implementation
  - Design and Creation of High Vacuum systems
  - Design and Machine Heterostructure Transfer Station
  - Crystal Synthesis via Chemical Vapor Transport

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- June 2017– **Nuclear Physics Researcher**, HUAN HUANG GROUP, UCLA.  
 Nov. 2017 Summer Program through UC LEADS. Research for the STAR collaboration at the Relativistic Heavy Ion Collider (RHIC). Work focused on data analysis and event simulation using the AMPT model.
- Other**
- June 2016 – **MCAT Physics Instructor**, *The Princeton Review*, Berkeley, CA.  
 June 2018 Create lesson plans and teach a course preparing students to take the Physics portion of the MCAT
- Aug. 2014 – **Gallery Attendant**, *Berkeley Art Museum Pacific Film Archive*, Berkeley, CA.  
 June 2018 Protect art work in exhibitions and act as a liaison to patrons
- May 2016 – **House President -Ridge House**, *Berkeley Student Cooperative*, Berkeley, CA.  
 Dec. 2016 Oversee motions and bylaw changes, manage house level managers and run house councils
- Aug. 2015 – **Administrative Committee Board Member**, *Berkeley Student Cooperative*.  
 Aug. 2016 Make administrative decisions on cases brought to the Berkeley Student Cooperative, to benefit both the students and the Berkeley Student Cooperative

## Publications

- 2018 Fufang Wen, **Jacob Bryon**, Liwen Wen, and Gang Wang. (2018) *Event-shape-engineering study of charge separation in heavy-ion collisions*, Chinese Physics C, <http://doi.org/10.1088/1674-1137/42/1/014001>
- 2017 (Acknowledgement) Seita Onishi (2017). *Low-Dimensional Materials at the Nanoscale: Transition Metal Chalcogenides, Carbon Nanomaterials and Organic Semiconductors*, UC Berkeley: Doctoral Thesis

## Research Presentations

- Apr. 2018 UC Berkeley; Physics Undergraduate Research Showcase: *"Effect of Strain on the Charge Density Wave State in Low Dimensional Materials"*
- Mar. 2017 UCSB; UC LEADS State Symposium: *"Search for the Chiral Magnetic Effect in Heavy-Ion Collisions and Quantification of the Background with the AMPT Model"*
- Aug. 2017 UCLA; Summer Research Symposium: *"Search for the Chiral Magnetic Effect in Heavy-Ion Collisions and Quantification of the Background with the AMPT Model"*
- Apr. 2017 UC Berkeley; Physics Undergraduate Research Showcase: *"Strain for Sliding Charge Density Wave in Quasi-Two Dimensional Materials"*
- Mar. 2017 UCLA; UC LEADS State Symposium: *"Synthesis and Electrical Transport Measurements in Low Dimensional Materials"*
- Aug. 2016 UC Berkeley; NERDS Berkeley Research Showcase: *"Synthesis and Electrical Transport Measurements in Low Dimensional Materials"*
- May 2016 UC Berkeley; NERDtopia-STEM Conference: *"Synthesis of Low Dimensional Materials for Study of Charge Density Wave and Superconductivity in van der Waals Heterostructures"*
- Apr. 2016 UC Berkeley; Physics Undergraduate Research Showcase: *"Synthesis of Low Dimensional Materials for Study of Charge Density Wave and Superconductivity in van der Waals Heterostructures"*

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## Awards

2016-2018 UC LEADS Scholar  
Fall 2018 UC Berkeley: Dean's List  
Fall 2017 Berkeley Physics Undergraduate Research Scholar  
Spring 2017 UC Berkeley: Dean's List  
Spring 2017 Berkeley Physics Undergraduate Research Scholar  
Fall 2016 UC Berkeley: Honors to Date  
Fall 2016 Berkeley Physics Undergraduate Research Scholar  
Spring 2016 Berkeley Physics Undergraduate Research Scholar

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## Relevant Coursework

Math Linear Algebra, Differential Equations, Multi-variable Calculus  
Physics Classical and Quantum Mechanics, Electricity and Magnetism, Statistical Mechanics  
El. Eng Solid State Physics, Integrated-Circuit Devices, Solid State Device

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## Computer Skill Level

Basic C/C++, ROOT, Autocad  
Intermediate Matlab, Python, JavaScript, CSS & HTML, LaTeX  
Advanced Mathematica, Microsoft Office

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## Languages

English **Mothertongue**  
German **Intermediate** *Con conversationally proficient*

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## Affiliations

- UC LEADS Scholar  
- CAL NERDS  
- Society of Physics Students  
- American Physical Society