

# ANDY CHEN

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## EDUCATION

**University of Michigan, Ann Arbor** **Ann Arbor, MI**  
2018 — Present  
Ph. D. Candidate in Physics  
**Georgia Institute of Technology** **Atlanta, GA**  
2014 — 2018  
B. Sc. in Physics *summa cum laude*  
Minor in Mathematics and Music Performance

## EXPERIENCE

**School of Physics, Center for Nonlinear Science** **Atlanta, GA**  
*Undergraduate Research, Dr. Predrag Cvitanović — Search for Periodic Orbits*  
August 2017 — December 2017

- Researched about Kuramoto-Sivashinsky equation and Michelson ODEs
- Redesigned code that solves Kuramoto-Sivashinsky evolution forward in space

**School of Physics, Center for Relativistic Astrophysics** **Atlanta, GA**  
*Undergraduate Research, Dr. David R. Ballantyne — Time-Dependent Modeling of TeV  $\gamma$ -Ray Source at Galactic Nuclei*

August 2016 — May 2017

- Redesigned C++ scripts to simulate proton acceleration processes
- Modified particle trajectory simulation process to allow solid angle manipulation
- Designed Perl scripts to perform big data management and analysis

**SLAC National Accelerator Laboratory** **Menlo Park, CA**  
*Internship, Dr. Jeff Corbett — TCSPC for Electron Bunch Measurement*

June 2017 — August 2017

- Designed MATLAB scripts to collect and send TCSPC data from PicoHarp 300
- Implemented methods to reduce instrumental error in TCSPC data
- Developed EPICS panel for monitoring and maintaining SPEAR3 electron beam
- Presented research results during a seminar and in a technical report

**Lawrence Livermore National Laboratory** **Livermore, CA**  
*Internship, Dr. Philip C. Myint — Thermodynamic Modeling of Energetic Materials*

May 2016 — August 2016

- Extended Peng-Robinson Equation of State to various energetic materials
- Designed Fortran and Python scripts to develop pure and binary mixture models
- Collected data from published literature to validate model predictions
- Presented research progress during a department seminar and poster symposium

**Parker H. Petit Institute for Bioengineering & Bioscience** **Atlanta, GA**  
*Undergraduate Research, Dr. Mark R. Prausnitz — Ionic Liquids for Drug Delivery*

January 2015 — December 2015

- Synthesized ionic liquids that incorporate active pharmaceutical ingredients
- Prepared experiments to measure properties of ionic liquids and their alternatives
- Performed independent research on antifungal drugs as ionic liquids project
- Presented research at AIChE 2015 ASC Undergrad Student Poster Competition

## PUBLICATIONS

B. Xu, E. Carranza, A. Chen, S. Condamoor, and J. Corbett. Electron bunch pattern monitoring via single photon counting at SPEAR3. *IBIC17, Lansing, MI*, 2017.

A. Chen. TCSPC monitoring of SPEAR3 electron beam via EPICS. *SULI Report*, 2017.

A. Chen, T. T. N. Huynh, A. Majumdar, and B. Musheno. *Origanum vulgare* subsp. *hirtum* glyceraldehyde-3-phosphate dehydro-genase-like (gapc) gene, partial sequence. *NCBI GenBank Nucleotide Database*, 2013.

## SKILLS

### *Platforms and Software:*

UNIX	Git	Adobe CS5
EPICS	Linux	Microsoft Office Suite

### *Programming Languages and Techniques:*

Python	L <sup>A</sup> T <sub>E</sub> X	Monte Carlo Methods
MATLAB	Java	Parallelization
C++	JavaScript	
Fortran	HTML	

### *Familiar Topics:*

Classical Mechanics	Particle Physics	Abstract Algebra
Electrodynamics	Radiation Physics	Real Analysis
Quantum Mechanics	Optics	Complex Analysis
Statistical Mechanics	General Relativity	Numerical Methods
Thermodynamics	Special Relativity	Probability & Statistics
Quantum Field Theory	Organic Chemistry	Differential Geometry

### *Linguistic Languages:*

English	Native Proficiency
Mandarin Chinese	Minimum Professional Proficiency
French	Elementary Proficiency
Korean	Elementary Proficiency

## SCHOLARSHIPS AND AWARDS

### **Kelley Family Music Scholarship (2016, 2017)**

Music Scholarship offered upon recommendation by the Music Department to undergraduate students participating in the Georgia Tech music program.

### **President's Undergraduate Research Award (2015)**

Competitive awards that fund undergraduate students conducting research with a Georgia Tech faculty member or Georgia Tech Research Institute scientist.

### **Phoenix Youth Symphony Young Musician's Competition (2014)**

Music Camp Scholarships offered to first and second place recipients of each instrument division of the Concerto Competition.

## LEADERSHIP

### **Georgia Tech China Care Club**

**Atlanta, GA**

#### *Treasurer*

May 2017 — May 2018

- Documented the expenditures and managed the budget for all club activities
- Crafted and submitted bills and grant proposals to various funding groups
- Oversaw responsibilities and needs of Fundraising Coordinator and Social Chair

#### *Co-Fundraising Coordinator*

January 2015 — May 2015, May 2016 — May 2017

- Coordinated fundraisers that sponsor orphaned children from One Sky Foundation
- Aided Treasurer in applying for funding from the Student Government Association

#### *Historian*

May 2015 — May 2016

- Recorded club events and activities on social media to spread club awareness
- Collaborated with other committee members in the planning of large events

### **Georgia Tech Yellow Jacket Archery Club**

**Atlanta, GA**

#### *Secretary*

May 2015 — May 2016

- Managed membership, minutes and records, attendance, and announcements
- Organized club social, recruitment, and advertising initiatives
- Provided coaching and instruction as a Level 2 NTS certified instructor