Jordan Kemp *Physics Ph.D Candidate, University of Chicago* mobile: 610-603-6372
B.S. in Physics, Tufts University email: jtk296@gmail.com

A self-driven, accountable physicist focused on outreach, collaboration, and discovery

Research Experience

University of Chicago, Bernien Lab *Graduate Research Assistant* Oct 2018-Present
Founding graduate student in an atomic physics lab simulating quantum systems using trapped atoms

- Designing and constructing high-precision laser network for Doppler cooling, trapping, and arranging Rubidium and Cesium atoms into arbitrary geometries using dynamically driven optical tweezers.
- Low-level systems programming for accelerated-hardware computation of rearrangement RF tones
- Simulation and analysis of tight-binding Hamiltonians.
- Acquisitioning important lab hardware and software through B2B interface.

MIT, Metric Geometry and Gerrymandering Group *Research Fellow* Jun-Jul 2018
Summer research program utilizing mathematical techniques to address congressional districting issues

- Analyzed performance of functions for county splitting using Shannon information entropy framework.
- Parsed and refactored Wisconsin voter data to consolidate two information formats and map resolutions
- Algorithmically discretized congressional maps and developed discrete compactness metrics
- Interfaced GIS with Python to run Markov chain algorithms on district maps in Puerto Rico

California Institute of Technology, LIGO: *Research Fellow* Mar-Oct 2017
Cryogenic temperature control and error propagation modeling for LIGO Voyager R&D

- Measured thermal conductivity and conductance of copper straps at cryogenic temperatures
- Designed and implemented error propagation model for coupled oscillators using Mathematica
- Developed apparatus for measuring the temperature dependence of silicon disk eigenfrequencies using an optical lever

Tufts University, Surface Physics Lab: *Research Assistant* May 2016-May 2018
Exploring the effects of surface scatterers on the conductivity of metal nanocrystals.

- Calibrating, operating, and analyzing data from Auger electron and FTIR spectrometers, PID heating system, residual gas analyzer.
- Operating ultrahigh-vacuum chamber and pumps including: ion, sorption, roughing, Venturi, turbo and diffusion pumps. Implementing fluid transportation networks and Helium leak checks.
- Independently troubleshooting complex electronics, repairing lab equipment. Designing, implementing, and testing solutions to lab problems.
- **Senior Thesis**: Simulating the effects statistical and deterministic bulk and surface scatterers on thin metal conductivity using Python.

Oral and Poster Presentations

Probing Topological Quantum Systems with Cold Atoms Nov 2019
Accepted Abstract, NSBP Annual Conference

A Cryogenic Testbed for High-Q Thin Films and Optical Coatings May 2019
Poster Session, APS DAMOP Annual Conference

Producing Behaviors of the Free Electron Model using N-Body Random Walks May 2018
Invited Speaker, Concord Consortium

Temperature Control and Coupled Oscillator Modeling for LIGO Voyager R&D Nov 2017
Invited Speaker, NSBP Annual Conference

Awards and Recognition

National Science Foundation Graduate Research Fellowship April 2020
Best Speaker in Photonics and Optical Physics Nov 2019
National Society of Black Physicists Annual Conference
Carl Rousse Fellowship Jul 2017
Caltech LIGO, National Society of Black Physicists

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Leadership Experience

Equity, Diversity, and Inclusion Office, UChicago PSD: *Student Advisor* Feb 2018-Present

- Organizing events for the graduate student body focused on engendering community focused on marginalized identities.
- Spoke at diversity recruitment panels, and recruited on behalf of the division in national conferences.
- Mentoring fellow graduate students

Tufts Community Union: *Class of 2018 Senator* May 2017-May 2018

- Established senior thesis support group, and ran campaign assessing state of social, academic, and living spaces of Tufts campus culminating in end-of-year report and presentation

Society of Physics Students, Tufts University Chapter: *Vice President* May 2017 - May 2018

- Coordinated research symposiums, educational talks by Tufts and outside researchers. Planned community outreach events.

Tufts Club Basketball: *Founder/President* Sep 2016-May 2018
A club to foster community of basketball players and fans at Tufts.

- Managed competition team by coordinating games with other Boston area schools.

Skills

Technology: C++/C, Python, LaTex, Django, Mathematica, HTML/CSS, Regression fitting, ARCGIS, Photoshop, DAQ, analog circuits, backing up data, installing operating systems
Languages: Intermediate German, beginner Chinese and Hebrew
Interpersonal: Enthusiastically collaborates as member of group. Able to enter new space, learn skills, and promptly become a productive member. Reliably completes independent tasks on time