GABRIEL P. LYNCH

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EDUCATION

The University of Chicago *2014-2018*
Bachelor of Arts in Physics with Honors June 2018
Bachelor of Arts in Mathematics June 2018
Thesis (Honors): "A holographic look at topologically disconnected black hole remnants"
Advisor: Prof. Carlos Wagner

RESEARCH EXPERIENCE

Cosmological Physics and Advanced Computation Group September 2018 - Present
Research Aide *Argonne National Laboratory*

· Developed a distributed spectral Schrödinger-Poisson solver for cosmological simulations of Bose-Einstein condensate dark matter, to be run on high performance computing machines at Argonne.
· Studied the formation of ultra-diffuse dwarf galaxies in extreme-scale cosmological n-body codes.

ATLAS Group June 2016 - September 2016
Department of Energy SULI Intern *Argonne National Laboratory*

· Analyzed and determined event selection criteria of simulated ATLAS detector data using the ROOT data analysis framework.
· Simulated particle collision data subject to various constraints using MadGraph5 and Pythia6.
· Wrote a project paper and presented research to others in the Argonne ATLAS group.

TEACHING

Junior Tutor October 2016 - June 2018
Department of Mathematics *University of Chicago*

· Held tutorial sessions twice a week for students in introductory calculus classes in order to review and reiterate class lessons.
· Provided student feedback in the form of graded quizzes and problem sets.

AWARDS AND HONORS

Black Hole Initiative essay winner of third prize December 2018

Departmental Honors for Undergraduate thesis in physics June 2018

Argonne Scholarship with grant of $53,000 per year 2014-2018

Dean's List for high academic achievement at the University of Chicago 2014-2016, 2017-2018

PRESENTATIONS

"Simulating dark matter with the Schrödinger equation" December 2019
Young Scientist Symposium Series *Argonne National Laboratory*

"Black hole remnants and topology changes" June 2018
Thesis presentation *University of Chicago*

MEMBERSHIPS AND COMMITTEES

Young Scientist Symposium Series organizing committee 2019-2020

Large Synoptic Survey Telescope - Dark Energy Science Collaboration (LSST-DESC)

SELECTED COURSEWORK AND SKILLS

Physics
PHYS 364: General Relativity
PHYS 243: Advanced Quantum Mechanics
PHYS 250: Computational Physics
Mathematics
MATH 263: Introduction to Algebraic Topology
MATH 274: Intro. to Differentiable Manifolds

Computer Languages   C++   Python   Fortran 77/90   Mathematica

Computer Skills   Distributed computing   MPI   Git   ROOT   Linux