

NADIE YILUO LITENN

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EDUCATION

University of California, Santa Barbara

Aug. 2017 - Present

Honors Bachelor of Science, Physics, College of Creative Studies

GENERAL RESEARCH INTERESTS

Black Hole Information, Quantum Field Theory and Cosmology, Beyond Standard Model Physics

SELECTED COURSEWORK

Graduate Classes:

Black Hole Info Paradox, Quantum Field Theory, General Relativity, QFT in the Curved Space, High Energy Astro, Quantum Information, Quantum Mechanics, Electrodynamics, Classical Mechanics

Undergrad Upper Division Classes

Particle Physics, Group Theory, Complex Analysis, Fluid Dynamics, Thermal Physics, Linear Algebra, Graph Theory, Intro to Statistics, Fly by night physics (with Prof. Anthony Zee), Teaching Physics

RESEARCH EXPERIENCES

AMO Exmperimental Group

Mar. 2019 - Mar. 2020

PI: Prof. Andrew Jayich

UCSB

- Worked on quantum error correction code for qudits, specifically for Sr87+ ions
- Simulated magnetic field insensitive ions by dressing them with radio-frequency magnetic fields, and encoding them into the decoherence free subspaces for quantum information processing

Geological and Planetary Science Group

Jun. 2018 - Sep. 2018

PI: Prof. Michael Brown, Co-Mentor: Samantha Trumbo

Caltech

- Analyzed the thermal properties of the Galilean satellites from over 300 unpublished Galileo Mission PPR data with the simple global thermal diffusion model
- Characterized the potential thermal anomalies on Europa, the thermal inertia map for Ganymede, as well as the relations between measurement and the albedo variations

Near Earth Asteroid Group

Jun. 2016 - Aug. 2016

Advisor: Prof. Michael Dubson

Sommers Bausch Observatory, University of Colorado, Boulder

- Took original observation data and determined the apparent magnitude and the orbit of the Near-Earth Asteroid 40329 (1999ML)
- Results accepted by the Minor Planet Center

Experimental Cosmology Group

Jun. 2015 - Aug. 2015

PI: Prof. Philips Lubin, Co-Mentor: Qicheng Zhang

UCSB

- Improved the laser-spacecraft simulation by determining and eliminating laser energy that will backfire
- Maximized energy output and minimized time cost by putting laser and spacecraft in orbital resonance
- Reduced uncertainty in time cost when varying the spacecraft launching time

INDEPENDENT STUDIES

Directed Reading on Quantum Field Theory in the Curved Space Jan. 2021 - Present
Prof. Don Marolf UCSB

Directed Reading on Quantum Field Theory Dec. 2019 - Present
Prof. Anthony Zee UCSB

Hydrodynamics in Astrophysical Accretion Disks Sep. - Dec. 2020
Prof. Anthony Zee UCSB

- Term paper for Fluid Dynamics
- Explain Bondi accretion and its application for stellar wind and collision particles

Entropy, Information, and the Universe Jan. - Mar. 2020
Prof. Anthony Zee UCSB

- Term paper for Fly by Night Physics
- Explain the origin of entropy and relate to advantages of quantum computers
- Sketch the derivation of Bekenstein bound, show why black holes saturate the upper limit of computational power, and calculate the ultimate computational power of the universe since the Big Bang

Young Tableaux and Its Applications Mar. - Jun. 2019
Prof. Anthony Zee UCSB

- Term paper for Group Theory
- Explored theoretical properties of including involution and Cauchy identities
- Relate to applications in binary trees, quantum angular momentum additions, and the dimension of decoherence free subspace in quantum error correction

Remotely Operated Vehicle (ROV) with Touch Sensing Control Dec. 2019 - Present
Prof. Andrew Jayich UCSB

- Quarter long project for PHYS CS 15C, Intro to Experimental Physics
- In charge of simple machine learning training, visualizing feedback data from the vehicle, and programming the hardware

TALKS AND PRESENTATIONS

N.Y. LiTenn (2020), “Black Hole Information Paradox - A Pedestrian’s Roadmap”, SPS Journal Club, UC Santa Barbara, California

N.Y. LiTenn (2020), “Entropy and Computational Power of the Universe”, SPS Journal Club, UC Santa Barbara, California

N.Y. LiTenn (2020), “Introduction to Theoretical Quantum Error Correction”, Guest lecture at INT CS 10, Full Stack Quantum Computing class, UC Santa Barbara, California

W. Fu, **N.Y. LiTenn**, M. Wang (2019), “Remotely Operated Vehicle Controlled by Touch Sensing on Simulated Terrain”, Independent Project Showcase of PHYS CS 15C Intro to Experiment, UC Santa Barbara, California

N.Y. LiTenn, M. Fan, A.M. Jayich (2019), “Magnetic Field Insensitive Radio-Frequency Dressed Qubit”, Research and Creative Activities Conference, UC Santa Barbara, California

N.Y. LiTenn, S. Trumbo, M.E. Brown (2019), “Temperatures of the Galilean Satellites”, APS Conference of Undergraduate Women in Physics, UC Santa Barbara, California

N.Y. LiTenn, S. Trumbo, M.E. Brown (2018), “Temperatures of the Galilean Satellites”, Research and Creative Activities Conference, UC Santa Barbara, California

N.Y. LiTenn, S. Trumbo, M.E. Brown (2018), “Temperatures of the Galilean Satellites”, KITP Undergraduate Physics Research Symposium, UC Santa Barbara, California

N.Y. LiTenn, S. Trumbo, M.E. Brown (2018), “Temperatures of the Galilean Satellites”, Caltech Summer Seminar, California Institute of Technology, California

N.Y. LiTenn, Q. Zhang, P. Lubin (2015), “Push that Craft Faster Every Single Time - Optimization for Laser-Propelled Spacecraft at All Launching Times”, Research Mentorship Program Symposium, UC Santa Barbara, California

AWARDS AND FELLOWSHIPS

Summer Undergraduate Research Fellowship (SURF)	Dean’s Fellow, UCSB, 2019
Traveling Undergraduate Research Fellowship (TURF)	UCSB, 2019
Visiting Undergraduate Research Program (VURP)	Caltech, 2018
Goldman Sachs Best Data Visualization	MHacks X, University of Michigan, 2017

TEACHING EXPERIENCES

Learning Assistant	<i>UCSB</i>
PHYS 21, Mechanics and Waves, with Dr. Tengiz Bibilashvili	Jan. - Mar. 2021
PHYS 150, Fly by Night Physics, with Prof. Anthony Zee	Jan. - Mar. 2021
PHYS 20, Newtonian Mechanics, with Prof. Don Marolf	Sep. - Dec. 2020
PHYS 101, Complex Analysis, with Prof. Jean Carlson	Jan. - Mar. 2020
INT 84AH, Honors Special Relativity, with Dr. Tengiz Bibilashvili	Jan. - Mar. 2019
PHYS 24, Electricity and Magnetism, with Prof. Paula Popescu	Jan. - Mar. 2019
Grader	Aug. - Sep. 2019
PHYS 104, Advanced Mechanics, with Eric Jones	<i>UCSB</i>

PROFESSIONAL SERVICE

Student Director	Oct. 2018 - Present
<i>KITP Undergraduate Physics Research Symposium</i>	<i>UCSB</i>
Chair of Journal Club	Oct. 2020 - Present
<i>Society of Physics Student</i>	<i>UCSB</i>
Invited Juror	Jan. 2021
<i>US Invitational Young Physicists’ Tournament</i>	<i>UCSB, Zoom</i>
Research Mentor, Jayich Lab	Jun. - Aug. 2019
<i>Research Mentorship Program (mentors are usually at least graduate students)</i>	<i>UCSB</i>
· Student: Brian Ji from Burnaby North Secondary School	
· Project: Characterization of Collimated Atomic Beaming for Ra-225 Qubit Isolation	

Invited Juror	Jan. 2019
<i>US Invitational Young Physicists’ Tournament</i>	<i>Rye Country Day School</i>

TECHNICAL SKILLS

Programming Language
Hardware

Python, Java, C++, Ada, SML
Raspberry Pi, Arduino, Ruff