Nolan Smyth

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EDUCATION

University of California, Santa Cruz, *Ph.D. Physics* *2018 – 2023*

Colgate University, *B.A. Physics* *2014 – 2018*
Summa Cum Laude with Honors in Physics

Middlesex Community College, *A.A. Liberal Arts* *2012 – 2014*
Phi Theta Kappa

FELLOWSHIPS, HONORS, AND AWARDS

NSF Graduate Research Fellowship *2020 – 2023*
The National Science Foundation's Graduate Research Fellowship recognizes and supports outstanding graduate students who demonstrate potential for significant research achievements with an award of $138,000 over three years.

Best Presentation in Physical Sciences – UCSC Graduate Research Symposium *2020*
Awarded $250 for presentation selected as the best of 9 talks given in the physical and biological sciences division on the basis of communication, importance, enthusiasm, and accessibility.

Outstanding TA Award – UCSC Physics Department *2020*
Awarded for outstanding performance as a Teaching Assistant based upon faculty endorsement and teaching evaluations.

Nominated to Sigma Xi Honor Society *2020*
Nominated as an associate member of the scientific research honor society Sigma Xi for exceptional contribution to research.

Joseph C. Amato and Anthony F. Aveni Research Award *2018*
Awarded for demonstrating excellence in scientific research and communication.

Benton Scholars Award *2018*
Recognizes Benton Scholars who have exceeded expectations by demonstrating outstanding work in global awareness, leadership, and academic achievement.

Regents Fellowship *2018*
Awarded $5,000 as a first-year graduate student based on academic merit.

Mini-grant Award 2018
Awarded $500 of funds for a field trip to the active Kilauea volcano and the Hawaii Volcano Observatory as part of an independent study connected to the Colgate Volcanology course.

Benton Scholar *2014 – 2018*
Selected as a Benton Scholar based on demonstrated potential for community leadership and scholarly achievement.

Dean's Award with Distinction *2014 – 2018*
Awarded for academic excellence evaluated by GPA.

Sigma Pi Sigma Physics Honor Society *2018*
Inducted for outstanding scholarship in physics.

Music and Youth Initiative Fellowship *2015*
Provided free musical instruments and 10 weeks of instruction to youth in an underserved area of Roxbury, MA while learning about the operations of a nonprofit organization.

Phi Theta Kappa Honor Society *2014*
Recognized for academic achievement in a two-year college.

PUBLICATIONS

Doubly-Decoupled Dark Matter.
Lehmann, B.; Morrison, L.; Profumo, S.; **Smyth, N.;** Manuscript in preparation.

Dark QED and the Black Hole Mass Gap.
Fernandez, N.; Ghalsasi, A.; Patel, H.; Profumo, S.; **Smyth, N.;** Manuscript in preparation.

Updated Constraints on Asteroid-Mass Primordial Black Holes as Dark Matter.
Smyth, N.; Profumo, S.; English, S.; Jeltema, T.; McKinnon, K.; Guhathakurta, P.; 2020. Phys. Rev. D 101, 063005

Multianalytical Science with the CODEX In-Situ Dating Spectrometer.
Anderson, F.S.; Levine, J.; **Smyth, N.**; Tebolt, M.; Whitaker, T.J.; 2017. 48th Lunar and Planetary Science Conference.

CONTRIBUTED TALKS

International Conference on New Frontiers in Physics 2020 *10/2020*
"Updated Constraints on Asteroid-Mass Primordial Black Holes as Dark Matter"
Phenomenology 2020 Symposium *05/2020*
"Updated Constraints on Asteroid-Mass Primordial Black Holes as Dark Matter"
UCSC Graduate Research Symposium *05/2020*
"Primordial Black Holes as Dark Matter"
UCI/UCSC Joint Seminar *04/2020*
"Updated Constraints on Asteroid-Mass Primordial Black Holes as Dark Matter"
SCIPP Seminar *03/2020*
"Updated Constraints on Asteroid-Mass Primordial Black Holes as Dark Matter"

University of Rochester Symposium for Physics Students *04/2018*
"Aspects of Fuzzy Cold Dark Matter"
Colgate University Honors Research Symposium *05/2018*
"Aspects of Fuzzy Cold Dark Matter"
Colgate University Senior Research Symposium *12/2017*
"Fuzzy Cold Dark Matter"
Syracuse University Undergraduate Research Symposium *09/2017*
"Fuzzy Cold Dark Matter"

POSTER PRESENTATIONS

NASA Goddard Summer Research Symposium *08/2018*
"Unsupervised Machine Learning as a Tool for Understanding Foreshock Acceleration"
NY6 Undergraduate Research Conference *09/2016*
"Supporting the Development of an In-Situ Mass Spectrometer"
Colgate University Summer Research Symposium *08/2016*
"Supporting the Development of an In-Situ Mass Spectrometer"

MENTORING AND OUTREACH

Workshop Designer and Facilitator *Spring 2020 - Present*
Created and co-led an interactive workshop series consisting of five 90-minute sessions on writing successful applications to graduate school and high-stakes fellowships for the STEM Diversity Program at UCSC. I have also held condensed versions of the workshops with the UCSC Geonomics Institute, CSUMB's UROC Program, and the UCSC Physics Department. I shared the curriculum and assessment materials and am working with coordinators of multiple undergraduate research programs, institutionalized the series to be taught regularly.

Co-Creator and Organizer – PH3 *Summer 2020 - Present*
Developed a weekly interactive "Physics Homework Happy Hour" (PH3) to build a sense of community and belonging for undergraduates in the physics department, something that is more challenging than ever in the Covid-19 era. PH3 is an event hosted on the gather.town platform where students move around on a virtual campus and interact with their peers in a much more natural environment than a Zoom room. Weekly discussion topics range from developing good study habits, to finding a mentor, to joining a research group.

Mentor – Cal-Bridge Program *Fall 2019 - Present*
Provide mentorship and tutoring for the Cal-Bridge Program, an NSF-funded initiative to support CSU physics majors from diverse backgrounds in order to increase the number of students from traditionally underrepresented groups successfully entering a physics/astronomy Ph.D. program.

Mentor – SPS/WIPA (UCSC) *2019-2020 Academic Year*
Supported the Society of Physics Students/Women in Physics and Astronomy (SPS/WIPA) mentoring program by providing personal and career growth mentorship to two undergraduate physics students.

President – Colgate Physics Club *2018-2019 Academic Year*
Revived the Colgate Physics Club. As President, I organized weekly meetings with colloquium speakers, created opportunities for students to share their research, and hosted general-audience events for hundreds of students and community members.

Fellow – Music and Youth Initiative *Summer 2015*
Provided high quality music programming to young people in underserved areas. I designed music lessons in guitar, bass, drums, and music production and provided free instruments and instruction to groups of children after school every weekday for 10 weeks at the Yawkey Boys and Girls club of Roxbury, MA.

TEACHING AND PEDAGOGY

Co-Designer and Alumni Liaison - Advent of the Atomic Bomb (Colgate) *Spring 2018*
Assisted in designing and teaching. Developed an online platform for the course, recruited and served as liaison to over 70 alumni who participated through the platform. Helped to organize a field trip to Washington D.C. to meet with the National Nuclear Security Administration and the Arms Control Association.

Teaching Assistant
Constructed lesson plans and teaching materials, led laboratory experiments and/or held discussion sections, created and shared supplemental resources for future TAs, and evaluated student performance in the following courses:

Physics 6C (UCSC)	*Spring 2020 & Summer 2020*
Physics 110A (UCSC)	*Winter 2020*
Physics 5D (UCSC)	*Fall 2019*
Physics 5C (UCSC)	*Spring 2019*
Physics 5M (UCSC)	*Winter 2019*
Physics 5N (UCSC)	*Fall 2018*
Electricity and Magnetism (Colgate)	*Fall 2017*
Cosc101 (Colgate)	*Spring 2017 & Fall 2017*
Cosc102 (Colgate)	*Spring 2017*
Fundamental Physics 2 (Colgate)	*Spring 2016*
Fundamental Physics 1 (Colgate)	*Fall 2015*

PROFESSIONAL SKILLS

Languages and Programs

Mathematica, Python, MATLAB, Java, English (Mother Tongue), German (Limited Working Proficiency)