



# Raphael Cervantes Ph.D. in Physics, Summer 2021 Hometown: Lynwood, CA

Raphael spent the last of couple years building an accordion that works in liquid helium temperatures in hopes of finding dark matter axions. This endeavor required a range of expertise, and he is eternally grateful for the help he got from Gray Rybka, ADMX collaborators, and the CENPA staff engineers. He will miss the CENPA community, the physics department, and the beauty of Seattle and Washington State.



### Tyler Denman Ellison

Ph.D. in Physics, Summer 2021

Tyler's experience as a graduate student has been greatly enriched by his advisor Lukasz Fidkowski and fellow group-mates Joseph Merritt and Ryan Lanzetta.

He is grateful for the enumerable discussions and the endless patience in answering naive questions. He is also thankful for Lukasz's support, which enabled him to attend conferences abroad and form collaborations.

Tyler is indebted to his family, friends, and partner Chennah Heroor for their support and encouragement throughout his graduate studies.

He is also grateful to Catherine Provost and Marcel den Nijs for helping him make a smooth transition from Stony Brook University.



# Seth Michael Hirsh Ph.D. in Physics Fall 2020

Hometown: Macon, GA

Seth discovered his passion for physics during high school, particularly after attending a summer program in quantum mechanics. He attended UC Berkeley for his undergraduate work, majoring in both physics and math, and especially enjoyed his research work in particle physics at LBNL. In graduate school at UW, he transitioned towards more computational work, analyzing and developing data driven methods for complex physical systems. While in the PhD program, he interned with both Oculus Research and Lyft Inc. Upon earning his doctorate, he accepted a position with Lyft Inc. as a machine learning engineer.

Seth extends utmost appreciation to Nathan and Bing for being outstanding advisors, to his mentors and colleagues for their valuable insights and fruitful discussions, and to his family and girlfriend, Xing, for their love and unconditional support.



### Joshua Mutch

Ph.D. in Physics
June 2021

Hometown: Jefferson, Oregon

Josh began his path in physics in community college in 2012, where wonderful teachers and peers reinforced his decision that of discovering the laws of the universe was the right choice for him. Transferring to Oregon State University, Josh was able to volunteer at a solidstate physics lab, where he learned the joys of experimental physics. Joining the University of Washington's physics Ph.D. program in 2015, Josh was able to continue experimental physics in Dr. Jiun-Haw Chu's Quantum Materials Laboratory.

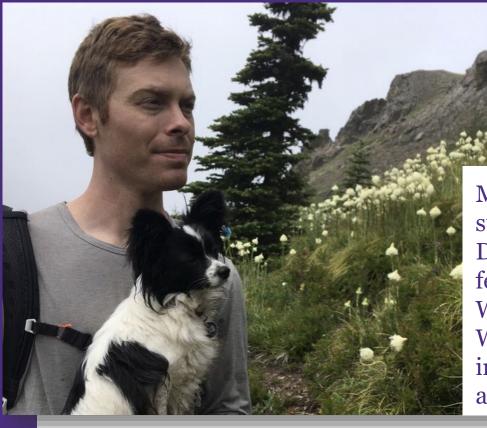


# Michael David Smith

Ph.D. in Physics Summer 2021

Michael greatly enjoyed his time at the UW, and he hopes the DRiP program will continue to benefit graduate and undergraduate students in the future. He will begin a postdoctoral researcher position at the University of Notre Dame in September, studying electron transport in topological superconductors.

Michael would like to thank Anton Andreev and Boris Spivak, for all the time and effort they put into making Michael a better scientist. Michael would not be where he is today without their mentorship.



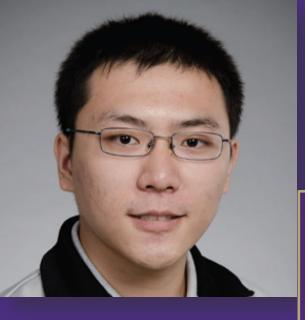
# Paul Sturmer

#### Ph.D. in Physics Autumn 2020

My dog Evie and I laid the groundwork for a deep-space asteroid survey mission. I would like to thank the Department of Physics and Department of Electrical Engineering for their continued support. I feel extremely fortunate to have worked under Professor Robert Winglee, who we lost unexpectedly on Dec. 24th, 2020. Professor Winglee had an extremely wide-breadth of research interests, including helicon plasma propulsion, ice impactor dynamics, and high altitude gliders.

He even led the way to launching the first artificial satellite built by this university. Being one of Professor Winglee's graduate students provided me with an extremely rich and diverse 7 year long experience. For instance, I never envisioned myself digging rockets out of the ground using a jackhammer. But above all, Professor Winglee will be remembered for his tremendous dedication to outreach efforts in promoting the STEM fields to tens of thousands of students through his work as Director of the Washington NASA Space Grant Consortium as well as the Northwest Earth and Space Sciences Pipeline. Professor Winglee will always be remembered for his dedication, honesty, ingenuity, and drive to share the gift of science.

Paul currently works on hydrogen fuel cell applications at First Mode



## **Bosong Sun**

Ph.D. in Physics Spring 2021 Hometown: Tianjin, China

Bosong loved his physics research and the close interaction with his professors and peers as he learned about the secrets of the 2-dimensional quantum materials. He strongly believes that science motivated primarily by curiosity will eventually be most beneficial to society, be it in advancing established technologies. His experience at Nanodevice Physics Lab made him realize his pursuit in this life is physics, especially nanodevices after he decided to start his journey in the industry of semiconductor. This summer, he will enter Applied Materials as a process engineer with a long-term career goal of devoting himself for future AI-based next-generation techniques in semiconductor manufacturing.

Bosong is extremely grateful to his academic supervisor, Prof. Cobden, and supervisory committee for their invaluable advice and patience during his PhD study. He also thanks all his wonderful friends, lab mates, and colleagues in the physics academia. It is their kind help and support that have made his study in the UW a great time. Meanwhile, he expresses his gratitude to his family for their love, tremendous understanding and encouragement throughout his life.



# Tun Sheng Tan PhD in Physics Autumn 2020 Malaysia

Tun Sheng has spent the last 8 years at UW. For his undergraduate, he worked in particle physics experiment at ATLAS. During his PhD program, he focused on theoretical and numerical methods for simulating the absorption of x-ray in materials. He is currently a postdoc at University of Florida working on quantum simulation of large systems.

Tun Sheng would like to express his profound gratitude and appreciation to Prof. Rehr for his mentorship, support and patience during his time at UW. He would also like to thank members of the Rehr's group, Joshua Kas and Fernando Vila for their help and advice, the graduate advisors Marcel den Nijs and Catherine Provost for whom without them would not be at UW, and finally his family for their love and support.

# Additional Ph.D. Graduates

Kyle J. Aitken **Tyler Blanton** Ruby L. Byrne Nick Du Bryce H. Fore Sean Gasiorowski Daniel L. Gochnauer

# Additional Ph.D. Graduates

**Jason Hempstead** Khang Nguyen Paul Van Nguyen Joshua Sanchez Kevin C. Smith David E. Sommer **Tiancheng Song** 

# Additional Ph.D. Graduates

John William Spencer Marshall J. Styczinski **Chang Sun** Michael K. Wilensky Bert C. Xue **Dake Zhou** Shifeng Zhu



