

# Personal Statement

Department of Physics and Astronomy at Michigan State University

Ethan Snyder

## Why I choose MSU

My goal in life is to be on the academic frontier. I want to contribute to the world's library of knowledge. All my life I've taken from that, and no matter how small, I'd like to contribute.

In high school, it was required for a course that I complete a job shadow. I decided instead of following my dad to work and having him sign my form, I would reach out to the physics departments of nearby colleges (in fact, Dr. Dykman should be able to search my name and find my email from 2019). A professor at GVSU replied and told me to come spend a day in the department. He gave me the invaluable advice that, even if I were certain I wanted to pursue astrophysics, I should major in physics and leave my options open. I am very thankful for that advice.

Every year I spent at WMU, I grew less certain that I wanted to pursue astrophysics, and I began to explore other areas. On top of that, my parents had been in the process of divorcing, which revealed that my dad had a severe gambling addiction. I came face to face with the fragility of financial stability as my mom, my brothers, and myself distanced myself from my dad (for many reasons). For the first time in my life, I had no financial safety net and no illusion of one.

During my sophomore year, I decided to stop commuting, get an apartment near campus, pick up a math major, and add a computer science minor. This is when I began getting serious about my future. The investment I was making in my education was less so fueled by whimsy and dream, but by the need to be financially stable for myself and my mom, who has cosigned all my debt. Still, I wanted to find a balance.

So I pivoted. I found a research opportunity I did, and still do enjoy: computationally modeling semiconductors. I learned that wherever my future leads, I want to be working with computers — I've always had a knack for coding, and I'd only gotten better with computers in undergrad, through this research and through classes. My knowledge in solid state physics now

extends far beyond what has been taught in classrooms so far, and I'd love to continue building that knowledge in graduate school. However, I'm eager to explore areas like QCD and quantum information science, topics which have not been covered in detail in undergrad.

There is no shortage of fascinating research being conducted at MSU, and for the sake of brevity I'm restraining myself from talking about every group and how interesting their work is. Thank you for your time and for considering my application. I look forward to the opportunity to contribute and learn from your research teams.

### **Making a community at WMU**

My freshman year at WMU was isolated. The world was recovering from COVID, most of my classes were online, and for the classes that weren't, I commuted 40 minutes each way and lived at home. I was detached from WMU's community and student body, and was distracted by pressing, life-changing events happening within my family.

Sophomore year, I moved out to live off campus. I made a friend who was a fellow physics major, and him and I would study together. After some time, we attempted to gather the other physics majors in our cohort to create a stronger support system.

In that process, him and I discovered the remnants of Physics Club. Like many other clubs at WMU, it dwindled and died as COVID kept students off campus. We made friends with the seniors who were once members who still utilized the physics major commons. They were never officially made officers as the old officers graduated, and Physics Club was not registered as an RSO.

My friend and I spent the following summer cleaning the physics commons. We cleaned and organized the old papers that covered all tabletops. We organized textbooks on shelves. We dumped and emptied pop cans so old that the syrup had completely separated from the water. We vacuumed and put the couches on one side of the room, the tables and chairs on the other.

In the fall of 2023, him and I registered Physics Club as an official RSO, opened a bank account in it's name, and I begun attending biweekly meetings to ensure we had access to funding if we were to want to host events. We agreed that as co-founders, we would be co-presidents, and I assumed the extra tasks of being treasurer. We got the email list of all physics majors and begun outreach because Physics Club had no members.

We were initially unsuccessful in finding a community of those who were

taking the classes we once took, and we were not able to reach those who had a general interest in physics. A few underclassmen trickled in over time and we introduced them to the commons and hosted study sessions if they wanted tutoring through courses. Still, we struggled to gather a community. I wanted to provide the community that I needed freshman year.

It wasn't until 2024's solar eclipse that Physics Club gained traction. I called parks, cities, and universities in the path of totality and asked to share their land for a watch party. I did the paperwork to ensure that the university would fund a bus to bring as many students as possible. I reached out to the Women in Stem RSO and we made the event a collaboration, and since then have partnered in many events. In the end, we were able to advertise enough to fill the bus, and it was an amazing experience, and an immensely rewarding endeavor despite the stress of planning.

Fall 2024, the semester in which I am writing this, has seen a boom in Physics Club members, and we're now in the process of partnering with Women in Stem and the Society of Hispanic Professional Engineers to plan a tour of Fermilab. Through in-person and email outreach, the physics commons can be somewhat loud during the day now. The work my friend and I have put in to make and maintain Physics Club has resulted in a strong community of students with a common passion for physics.

The large table in the center of the physics commons, historically, has been empty except for when my friend and I studied together. Now we find every chair around the table full with students studying, doing homework, and talking. Being able to walk into the commons and help a group of underclassmen with courses I've already taken is very rewarding (and good practice). It was the vision my friend and I had when we rearranged the room and put the tables together, and it's the community that I went searching for years ago.