

## **James Rydell**

Grade 12

### **Hobbies**

Physics, Math, Flute, Tetris, Tennis, Chess

### **Clubs**

Physics Club, Wind Ensemble, Academic Decathlon, Tennis Team

### **Experience**

National Merit Scholarship Recipient, USAMO (2022), USACO Gold (2020-2021), USAMTS Bronze (2021), AIME qualifier (2019-2022), AP Scholar with Distinction, Congressional App Challenge Winner (2020)

### **Autobiography**

Like many of my teammates, my formal involvement in Olympiad physics began with an interest in math much earlier. I began competing in an elementary school math team in fourth grade and fifth grade before beginning my participation in the AMC and Mathcounts competitions throughout middle school. Although I was introduced to physics in my eighth grade science class, I remained more interested in math and computer programming, a trend which continued through my first year of high school.

My interest in physics really began in tenth grade, when I took AP Physics 1 and decided to join the school Physics Club at the suggestion of a friend who shared my interest in math. This introduced me to the fascinating world of physics competitions through the  $F=ma$ , which our club lightly studied for by doing a few problems each week. Later that year, I was surprised to qualify for the USAPhO by placing in the top 400 students on the  $F=ma$ , as I still had yet to complete AP Physics 1 and knew nothing beyond basic mechanics. While the COVID-19 prevented a traditional administration of the USAPhO in 2020, my experience in Physics Club and AP Physics showed me the beauty of the subject and contributed to me shifting my predominant focus from math to physics.

Although I did not take a physics class my junior year of high school, having signed up for AP Chemistry instead, I used some of the additional free time that online school brought to learn more about physics. To do this, I continued participating in the school Physics Club while also signing up for PhysicsWOOT and reading about various physics topics online. This year is when I came to more deeply appreciate how varied and deep the field of physics is, going far beyond my previous understanding of mechanics alone to learn about electromagnetism, fluids, thermodynamics, and quantum mechanics. In my senior year, I returned to classroom physics by enrolling in AP Physics 2, and have greatly appreciated the chance to once again learn physics in

a classroom setting, working with fellow physics students on problems, projects, and labs. While my individual practice was fascinating and enlightening, the chance to work with others who share my interest in physics was wonderful, and it is the thing I look forward to most about being a member of the US Physics Team.

There are several people that I would like to thank for getting me to this point. The first is the letter “D,” my go-to guess on the 2020  $F=ma$  that happened to be correct for many questions I had no clue how to solve. I wouldn’t be where I am without these lucky guesses. On a more serious note, my parents and teachers have always been an invaluable support to me, always motivating me to continue working hard to achieve my goals. I would also like to thank my older brother Eddie for an incredible number of conversations about physics and math that without fail deepened my understanding of these subjects. Likewise, my friend Ryan was an example to me throughout all of high school, and him introducing me to Physics Club and the  $F=ma$  was the main catalyst behind all of my physics-related accomplishments. Finally, I’d like to thank Mr. Groothuis for introducing me to physics, providing the foundation for all of my physics knowledge, and for continuing to push me to excel at this subject.