

James Shi

11th Grade

Hobbies: Playing basketball, drawing, Word Hunt

Clubs: Physics Club, Math Club, Science Bowl, Science Olympiad

Contest/Competition Experience or Honors: U.S. Physics Team (2023), USAPhO Gold Medalist (2022-2023), USAPhO qualifier (2021-2023), AIME qualifier (2021-2023), USACO Silver Division, Science Olympiad State Medalist (2023)

Autobiography

I first started learning physics because I saw it as the “cool” science. It was the science of subatomic particles, the science of galaxies and supernovae. The science of everyday objects, the science of satellites orbiting at absurd speeds. The pandemic gave me the perfect opportunity to immerse myself in the subject and I spent much of my freshman year learning introductory mechanics and working through Morin’s *Problems and Solutions in Introductory Mechanics*. Taking the $F=ma$ exam for the first time that year, I barely qualified for the USAPhO with exactly the cutoff score.

Although I was unable to do much on my first USAPhO, this early success motivated me to continue pursuing physics. In my sophomore year, I picked up Halliday and Resnick’s *Physics*, the fabled text that lives rent-free in the minds of physics Olympiad aspirants. I would love to say that I simply absorbed the information in the book and quickly developed the skills necessary to improve in the USAPhO, but in truth it was a year-long struggle. Initially, I had a hard time understanding the material – thermodynamics made no sense to me, fluid dynamics was unintuitive, and relativity was practically out of reach. By winter break, I still could not solve the vast majority of past exam questions.

When it was time for the $F=ma$ again, I was confident that I would pass. But after hard trolling or misreading a third of the questions, I again received a score of 15 and was borderline again. By a stroke of incredible luck, I scored exactly the cutoff for the second time in a row. Knowing that I could not take this opportunity for granted, I spent the month before my second USAPhO frantically reading and solving problems. Olympiad problems finally started to click, relativity was making just a little bit of sense, and I earned a gold medal.

This year, I set my sights on making the US Physics Team, working through Kevin Zhou’s amazing problem sets to fill in knowledge gaps and strengthen my problem-solving throughout the year. No words are sufficient to describe the excitement I felt when I received my email invitation, the feeling of three years of work finally paying off. I wouldn’t have gotten here alone, so I would like to thank my friends, family, physics club advisor and teacher Mr. Smay for being supportive and integral parts of my physics journey. I would also like to thank AAPT for this opportunity and I can’t wait to join the team this summer!