

Atharva Shah

Junior, Eastside High School

Hobbies: tae-kwon-do, ice skating, ultimate frisbee, hiking, watching football and hockey

Clubs: math and science competition club (founder/coach/president), beta club (president), mu alpha theta (vice-president), quiz bowl (captain), student government (appointed officer), national honor society; Civil Air Patrol (deputy commander of operations, Greenville Composite Squadron), tae-kwon-do demonstration team (captain)

Contest/Competition Experience or Honors USNCO nationals (2022, 2023), AIME (2022), first place Clemson Calculus Challenge (2022), third place ARML, quiz bowl state champions (2021, 2022, 2023), NFMC superior (2018, '19, '20, '21, '22)

Similar to many others, my introduction to physics came from pursuing mathematical contests in my middle school years. Joining Math Club in 6th grade, I was introduced to the intense demands of Olympiads through AMC 8. I did not have an innate grasp of the tricks and gimmicks needed in math contests, and I did not end up placing well in my middle school career. This was my first glimpse into the challenges of Olympiads, and was the first time that I felt truly challenged in STEM. But instead of giving up, I continued to work hard and learned complex problem solving skills, and through the next contest, Mathcounts, placed in state during my seventh and eighth grades.

Upon coming to Eastside High School, I began looking for a math club, but was horrified to not find anything. I thought that my dreams of Olympiads had come to a crushing end, as I did not see any possible opportunity for me to take them now. Advanced courses were also not available, with the highest physics course being Physics 1. However, after talking with my parents, I saw an opportunity to help both myself and my school: create my own Olympiad club. After my first year ended (it was virtual), I talked with my physics (Mr. Carroll) and calculus (Mr. Fox) teachers, and they were both willing to help me with my dreams. Sophomore year was my first true competition year, and I managed to qualify for AIME, USNCO Nationals, and got first place at Clemson Calculus Challenge. However, my biggest motivator was missing USAPhO by one point. I knew I would have to submerge myself into the pitfalls and nuances of physics to grow as a physicist. Starting with David Morin's Problems and Solutions in Introductory Mechanics, and ending with Wang & Ricardo's Competitive Physics: Mechanics and Waves, I learned just how nuanced physics can be, and my appreciation for it grew tenfold. I learned how to approach the questions on $F=ma$ and how to apply rigorous mathematics (algebra, calculus, and complex numbers) to those problems. Courses from Stanford Online High School in optics, thermodynamics, and modern physics helped me to master the fundamentals, and various textbooks supported the rigor needed for USAPhO. My school teachers, parents, and fellow classmates also encouraged and supported me, and helping students through tutoring helped to solidify the basic concepts of math and physics.

On $F=ma$ this year, through hard work and dedication, I qualified for USAPhO. After completing USAPhO, I never dreamed to be given the honor of a US Physics Team member, and you can imagine the surprise when I opened my email and saw an invitation to the US Physics Team. I knew that I would have to put every ounce of my body into mastering physics, as I was now representing not only myself, but my family, school, district, and state as well.

This process of understanding physics and the accompanying mathematical rigor would not have been possible without the constant and unwavering support from my supporters: Mr. Carroll and Mr. Fox; Ms. Liu; Dr. Oas; my classmates; and finally my parents. Thank you for everything!