

## Thanush Patlolla

Junior at William G. Enloe High School

**Hobbies:** Playing guitar (jazz and classical), audio engineering, listening to new albums (mostly hip-hop), playing poker, eating hotpot, weightlifting

**Clubs:** Enloe Science Olympiad (Captain), Enloe Science Bowl (Captain), Enloe Physics Club (Founder), Enloe RISE

**Contest/Competition Experience or Honors:** US Physics Team 2024, USAAO Nationals Qualifier 2024, 3x AIME Qualifier, NC State Math Contest 12th Place (2023), USACO Silver, 3x Science Olympiad State Winner, 7th (2022) and 10th (2023) Place National Science Olympiad Team, over 25 State and National Invitational Science Olympiad Medals (including 1st place MIT Optics), Online Physics Olympiad 7th Place Team, Essentially Ellington Jazz Competition 4th Place Big Band (2022), 2x Enloe Integration Bee Winner

### Autobiography:

As an elementary schooler, I was always captivated by science. Every week I would go to the library and get a new stack of books from the children's nonfiction section, never having learned enough. I was never particularly interested in physics—until one day, I picked up *Basher Science: Extreme Physics*. I didn't particularly understand the explanations of quantum and particle physics in that book, but it made me realize that physics was more than forces and acceleration, more than explaining fire and lightning—it was about building models to explain the most fundamental building blocks of our universe. Hooked, I graduated to the adult section, devouring books like *A Brief History of Time*, *The Trouble With Physics*, *Our Mathematical Universe*, and more. But no matter how many pop science books I read, I felt dissatisfied with the explanations I was getting—I wasn't actually learning physics, just becoming excited by the unknown, becoming more and more curious about black holes, particle physics, and string theory.

As a middle schooler, I took a detour into math—what I needed to learn physics properly. My Mathcounts days pushed me to think about the world quantitatively, starting to build models to study interesting problems. I also joined Science Olympiad, taking on Circuit Lab to further my physics knowledge. As a guitar player, I also started learning about audio engineering, which only intensified my love for physics as I learned about circuits and sound. After years of math, finally learning calculus, I started seriously studying physics in the summer before 9th grade. This is also when I learned about USAPhO, and I made it my goal to camp—seemingly an unrealistic goal after 2 years of no qualification, but I kept working, doing as many problems as I could.

Beyond high school, I know I want to pursue condensed matter physics research. I have had the pleasure of being able to work on computational materials science research at Duke, and it allowed me to see that the model building I loved so much about physics was just as prominent in explaining complicated many body effects as it was in modern particle physics—and honestly, way more interesting. The statistical mechanics I learned for USAPhO was able to be combined with a little bit of quantum to explain all sorts of amazing behavior, from ferromagnetism to superconductors. Condensed matter models are just USAPhO questions—which I already love—on steroids. USAPhO has given me the motivation and knowledge to continue my physics journey, and hopefully one day I can work my way up to solving problems that positively impact society.