

## **Brian Zhang**

10<sup>th</sup> Grade

**Hobbies:** Piano, tennis, chess, reading, walking in the woods behind my backyard

**Clubs:** Physics Club, Motown All-Stars Mathematics Academy, Journalism Club, Varsity Tennis Team

### **Contest/Competition Experience or Honors**

USAPhO Silver (2022); PUPC #8 in USA (2022); USAJMO (2021, 2022, and 2023) and Honorable Mention (2023); HMMT; PUMaC; SMT; Michigan Science & Engineering Fair 3<sup>rd</sup> Place (2022) and Finalist (2023)

### **Autobiography**

In seventh grade, I read Richard Feynman's *Surely You're Joking, Mr. Feynman!* Through stories of working on the Manhattan Project, cracking safes, and presenting in front of Albert Einstein, the scenes that have continued to play vividly in my mind feature Feynman's impressive ability and Hans Bethe's even more impressive ability to make arbitrary arithmetic calculations to great precision in their heads. Despite the seemingly mathematical nature of such a gift, the understanding that goes into such a capability is in fact highly physics related, as physicists are often the most familiar with arithmetic manipulation of common physical or mathematical constants. Reading this and Feynman's other books sparked in me a profound interest in physics that has only grown over the years, bringing me to where I am today.

The next step in my physics journey lay in a deep dive in learning all the facets of physics. Despite the daunting heaps of content that awaited me, a ceaseless curiosity to explore further and to discover the inherent causes of various physical phenomena drove my learning. What is the physical meaning of displacement current? Why is a sonic boom a double boom instead of single? Is Faraday's Law an underlying cause of related phenomena or merely an observation that is governed by a more fundamental principle? From each new concept or fact that I learned, there followed a flurry of questions essentially asking "Why?" or "What if?" Such investigations led me onto paths that would sometimes end with a perceptive explanation from a teacher or textbook or with a persistent search on Physics Stack Exchange. My unanswered questions continue to accumulate in a Google Doc. Perhaps some of them will be answered at camp. For me, physics has embodied a real-life manifestation of Socrates' famous line: "All I know is that I know nothing." The more I learn, the more I find I do not know, and this only fuels my drive to seek further.

Besides pursuing knowledge on my own, I enjoy sharing physics with others as well. When I established the Physics Club at my high school, I initially aimed to prepare members for physics competitions. However, I soon found that my preaching of  $F=ma$  problems did not appeal to the majority of my audience. With an adjusted mission statement, our club now focuses primarily on bonding through labs, toying with new physics equipment, and enhancing classroom learning. I have come to appreciate that a passion for physics can present itself in various shapes and forms. After all, what can beat hearing a garbled rendition of Happy Birthday from a simple electronic sound box after realizing that the snap circuit wire wasn't attached properly? Recently, our advisor challenged us to recruit girls to our currently all-male club. How to increase the female presence? Yet another question to seek an answer to at camp.

My physics journey will stretch far off into the distant future, and I am greatly indebted to the numerous individuals who have helped me to arrive at this checkpoint. Thank you to my parents for their unconditional love and to my dad for being my anchor when I doubt my physics intuition. Thank you to Dr. Tang for guiding me through my study of higher level physics, to Mrs. Jenny for her cheers, and to Mrs. Garber for her support of our club and confidence in my leadership. And thank you to Mr. Feynman, who certainly was not joking when he lit the filament to the lightbulb of physics inquiry that continues to shine brighter and brighter.