

Yuanyuan Ding

11th Grade

Hobbies: Dancing (Hiphop, KPOP, Chinese dance, Jazz), playing Guzheng (a Chinese instrument), listening to KPOP music, and going to the gym.

Clubs: Model United Nations (Club President), KPOP (Club President), Mock Trial, Philo-Chocolate Society, Chinese music band (Guzheng first chair), Dance, Youth and Beyond (Organization President)

Contest/Competition Experience or Honors: USAMO Qualifier *2, Math Prize for Girls Qualifier *2, AIME Qualifier *4, USACO Platinum Qualifier, Model United Nations (Best Delegate Award *6, Outstanding Award *5, Commendation Award *6, and Research Award *6), IgniteCS Category Second Place

Autobiography:

I was a big fan of science fiction as a child, captivated by fanciful stories about the universe and always curious about the feasibility of their plots. I was particularly fascinated by black holes and wormholes because I dreamed of making time travel possible. After entering third grade, I was introduced to physics in elementary school. My first lesson was the story of Isaac Newton and the apple tree, followed by an introduction to basic concepts of electricity and mechanics. In my fourth grade, I got a chance to do a project to test the water quality at different locations along the river in my hometown. All of these motivated me to learn more science.

My understanding of physics deepened last year when I learned and used a lot of AI. First, I conducted a research project focused on designing deep learning algorithms to detect cyberbullying through texts on social media platforms. This required a deep understanding of the prevalence of cyberbullying on social networks and the principles of gradients and tensors, concepts closely related to physics like statistical physics and potential energy. Secondly, I read an article titled 'The Physics Principle That Inspired Modern AI Art,' which explained how the diffusion model behind DALL·E 2 was motivated by physics principles. These experiences, combined with my past participation in math and CS Olympiads, inspired me to delve deeper into physics and try the Physics Olympiad.

Outside the STEM world, I am also active in numerous humanitarian activities. As the president of the Model United Nations (MUN) club at my school, I have participated in 18 conferences over the last three years and have won various awards, including numerous Best Delegate awards. Through MUN, I have learned about many social issues, such as cyberbullying, gender inequality, climate change, and human trafficking. Learning about these issues has motivated me to apply my STEM knowledge to address global problems.