

I am similar to many other students of science in that I have always loved science and always known that science was the field I wanted to pursue as a career. When I was young, it began with little science kits that my parents bought me and eventually developed into a fascination with space. In high school, I had the wonderful opportunity of exploring my fascination with space and science with more rigor. One of my teachers had previously worked at NASA and brought her knowledge and connections from that experience. Because of her, I was able to work on multiple experiments that flew aboard three different shuttle flights. Through this, I gained invaluable experience about experimental science and my own desires. I also took away a deep desire to pursue learning about physics. At the same time as this I also took classes in education and had the opportunity to take two years of physics from Gregg Swackhammer, a noted educator and researcher of physics education. The combination of these two events led me to believe that teaching would also have to be combined in my future if I was going to enjoy myself. And so it was, I went to college as a physics major who aimed to get a masters in education and become a high school teacher.

As I entered Truman State University, I immediately entered into my physics classes and enjoyed the challenge and insight about the world they provided me. I also collaborated with one of my physics professors to develop a physics education research project that allowed me to continue doing research, as I had enjoyed so much in high school. As I passed through my freshman year, my interest in the project grew as did my desire to learn more physics. However, at the beginning of my sophomore year much changed. During this time I read two books that had a significant impact on me, along with my coursework. While taking Modern Physics I and II and Introduction to Special Relativity, I read "A Brief History of Time" by Stephen Hawking and "The God Particle" by Leon Lederman. As I read these books, I began to gain a larger picture of how all the rules of nature work together to form the laws that nature never ceases to obey. The classes allowed me to concurrently dip into the mathematical beauty of these subjects while learning the foundations of the pictures I saw painted in the books. It was after experiencing the rush that accompanied my new view that I determined that I needed to attend graduate school and pursue an even deeper level of understanding.

My revelations about my future goals did not stop at this point however. Over the past year, I took Advanced Laboratory I and II. This experience, along with some research I began with photonic crystals led me to realize how much a deeper level of understanding of physics would benefit me. In these laboratory experiences, I not only found myself totally enthralled and challenged in a extremely fulfilling manner, but I also began to understand much of what I had learned on a much more developed level. The equations that I had previously been able to craft into so many variations, now took on a higher and fuller form as a second language for me to speak with.

In addition to these experiences, my work this past summer at the National Institute of Standards and Technology has also molded my desires so that I now wish to do physics at an advanced analytic level. I know that I will enjoy and perform my best in experimental based work. In addition, my interests have fallen primarily into the subfields of optics/photonics and condensed matter; particularly nanoscale work within these two disciplines. These subfields appeal to my desire to not only learn about the workings of our world in a deeper manner but also to accomplish work that can be useful for humankind. This is the same desire that originally directed me on the path to teaching.

As a person, I would characterize myself as an outgoing and positive individual with a very good work ethic. I have always had a sense that one's character and, to a degree, merit is based upon the results they can produce and how they affect other around them in obtaining those results. Therefore, I constantly seek to enjoy my own life and muse about the "little things" in life so that I might transfer some joy to others.

In addition to these personality traits, I feel that I can add to any project with my creativity, leadership, and research experiences. I am well acquainted with the trials and setbacks that inevitably occur in experimental work as well as how to handle these issues. I am also acquainted with numerous areas of lab work ranging from electronic, to computational, to mechanical. By far however, the most valuable asset that I will bring is my deep desire to explore our physical world and the initiative that complements this desire.