

Desiré Whitmore

Profile of a Female Scientist: An Interview with Desiré Whitmore By Jennifer Kruschwitz

Meeting brilliant people striving to make long-lasting contributions to the field of optics as well as the science-education community, has been a regular occurrence since my affiliation with the Optical Society of America (OSA). So when OSA asked me to interview and profile a few of the Society's female student members for the MWOSA newsletter, I jumped at the chance.

This month I had the opportunity to get to know Desiré Whitmore, UC Irvine, and discuss her interest in science, her dedication to increase the number of minorities pursuing science degrees and her enthusiasm for youth outreach.

Desiré grew up in the Antelope Valley of California and attended Littlerock High-School, before graduating with honors from Antelope Valley Community College (AVC) with an Associate's degree in Physical Sciences. Soon after she transferred to the University of Los Angeles (UCLA) and graduated in 2005 with honors in Chemical Engineering. While at UCLA she realized she was passionate about teaching and decided to pursue a Ph.D. in order to become a university professor. She is currently a 3rd year Ph.D. student at the University of California, Irvine, studying Chemical and Material Physics under Professor Eric Potma. Her research is focused on the dynamics of a chemical bond and in order to probe these dynamics, she performs femtosecond time-resolved Coherent anti-Stokes Raman Scattering (CARS) measurements on single molecules. She is a recipient of the NSF Graduate Fellowship.

Desiré has a great outlook on the future role of women and minorities in science and shared some of her past and future goals with me.

1. Was scientific exploration and science-based topics of interest to you as a child? Do you remember what sparked your interest in science?

Well, as long as I can remember I have always loved to take things apart and put them back together. Much to the dismay of my parents I used to take apart VCR's, rotary telephones, vacuum cleaners, watches, videogames; basically anything I could get my hands on. I really loved figuring out how things worked, and I still do. Also, I have always loved mathematics. It was my favorite subject in school, and it made learning science even easier because I felt like I could already speak the language.

My interest in chemistry didn't come along until high school, when I took my first chemistry course. Again, it was the math that attracted me, and also the idea I could build something out of different components. My teacher made sure we were very involved in experiments, and had us do things we had an interest in like making stink bombs.

2. After high school, you attended a two-year community college before moving to UCLA. How did your studies in Physical Sciences at [Antelope Valley Community College](#) prepare you for the Chemical Engineering degree you earned from UCLA?



Born: 1980

Residence:
Irvine, CA, USA

Ph. D. Advisor:
Eric Potma

Professional: Ph.D. candidate in
the Department of Chemical and
Material Physics at UC Irvine.

That is a very good question, and I am glad you asked because a lot of people who do not attend community colleges look down on them as “second-rate” education. My education at AVC was actually very thorough and it helped me to take my time to decide exactly what I wanted to do. The science department there is excellent, and they prepared me well. When I transferred to UCLA I was amazed to find I was better prepared for my upper level engineering courses than most of the students who started at UCLA from the beginning.

Also, attending community college really helped prepare me for real life, because I had to work full time while attending school. Going to work, and taking classes was difficult, but it made me appreciate how important education really is. I knew I had to obtain a higher degree in order to make a comfortable and happy life for myself.

- 3. What advice do you have for those who start out at community colleges with the aspiration of eventually receiving not only their bachelors but graduate degrees as you have?**

Just keep on working. It is a long road, but the end is worth every moment.

- 4. You are the first in your family to attend college. What would you say to girls who don't see college as a possibility?**

As the eldest of six children, and the first person on either side of my family to go to a university, I understand the importance of being a strong role model for my siblings and others. With my guidance I have one sister at UCLA now and a brother who is currently applying to college. The rest are still in high school, but will be in college soon enough.

I tell them and others anything is possible, if you put your mind to it. Relying on people is not a very good trait to have, and going to college helps you to become an independent person which is something I think all women should aspire to be.

If you think you can't afford it, you are wrong. There is always money available you just have to find it. Either with scholarships, or by working... college can be made affordable.

- 5. There are a number of excellent funding programs and grants that assist women and minorities in their pursuits of scientific studies and careers. Can you share how you were able to leverage any of these resources and offer advice to others on how to utilize available programs to their advantage?**

Always keep your eyes open. There are many resources available; you just have to find them. When I went to UCLA I was lucky enough to find the [Center for Excellence in Engineering and Diversity \(CEED\)](#). By networking with others involved with CEED, I was able to learn about and obtain a scholarship for my first year at UCLA, which helped me significantly. Members of CEED also introduced me to the [National Society of Black Engineers \(NSBE\)](#) and the [Society of Hispanic Professional Engineers \(SHPE\)](#). I was very involved with both throughout my undergraduate studies. My involvement with these groups also introduced me to youth science outreach, which is still one of my favorite things to do.

- 6. Looking back on your academic career, which professors/mentors have had the most impact on you? Why?**

One professor in particular, Dr. Yung-Ya Lin at UCLA, has had a dramatic effect on my life. In my junior year at UCLA I took the undergraduate quantum mechanics course in the chemistry department, and it completely changed the way I viewed science. The professor was amazing, and was very demanding. He took the time to help me whenever I asked, and even gave me a job as an undergraduate researcher in his lab for the next two years. It is because of his mentorship that I am now a chemistry major in graduate school and I study a quantum-related field.

- 7. You mentioned you have yet to have the opportunity to study under a Mexican or African American professor. How has this shaped your career path and future goals?**

It has left me with the need to be that person for the future generation of minority scientists. I realize having a role model who is similar to you has a large affect on how you see yourself. If minority students see I can do it, it will fill them the hope that they can do it also.

In addition being of Mexican and African American heritage, as well as being a woman, makes it very important to me to increase the number of minorities holding Ph.D.'s in science so others will have positive and familiar role models helping them pursue higher education. My motivation is to help more women and minorities comprehend the wonders of science instead of being bored or intimidated by it. I hope in time they might even come to share my passion and enthusiasm, and I know being a good professor can make all the difference.

- 8. I agree, it is important for young girls and minorities to have others in the scientific fields to look up to and admire. These types of role models help pave the way for more engagement from underrepresented groups. After you obtain your Ph.D. how do you plan to reach out and inspire others both as a professor but also as a young female of African American and Mexican decent?**

As a professor I will be in an important position to influence many students. I believe just being in that position will be enough for some students. I know I will not have very much time to go out and do outreach, but I will still do as much as I can, whenever I can.

- 9. Was there an event which left you with no doubt teaching was for you?**

When I started community college I helped to found the Physics and Engineering Club, which was basically a group of students taking the same core courses and studying together. I carried the tradition with me when I came to UCLA, and found often it would turn into a big review session taught by me. Many times professors understand advanced material in a specific way, and are not very good at explaining it in a more simplified manner students can understand. I am able to do that, and because of it, a lot of my peers learned a lot from me. In graduate school I finally got the opportunity to really teach, and I love it. When I am not teaching classes, I am doing outreach to teach children.

- 10. You are currently involved in a number of educational outreach and mentoring activities. I understand you have been a volunteer supporting OSA's partnership with the Girl Scouts,**

OSA's Science Educator's Day and you are very active in the OSA Student Chapter at UC-Irvine's [outreach activities](#). Tell me about one of your favorite events from the last year. What made them special?



Students at Roosevelt Elementary School showing off their home-made kaleidoscopes.

My favorite event from last year was definitely the science day at Roosevelt Elementary School in Compton, California. We helped over 200 underrepresented students make their own kaleidoscopes from materials we provided. It was reaching out to the kids that really need it, and they had a great time. They also had a science fair and got to do an egg drop, race macaroni cars, and launch bottle rockets they made themselves. It was very exhilarating to see how eager these students were about science, and it was great to see the kids being supported by their families at the awards ceremony. One girl in particular told me she wants to build telescopes and be an astronomer when she grows up, and meeting me showed her people like her actually do it. That really touched me, because it exemplified my main reason for doing this in the first place.

11. Do you think unconventional methods and hands-on activities are needed to engage the young scientists of tomorrow? Why?

Absolutely. A lot of children today are addicted to television and video games, and have an incredibly short attention span. Children learn not only by reading, but by doing. In order to get them interested they need to be actively involved in the learning process. They like playing games, building things, or being volunteers.

12. Desiré, thank you so much for taking time to share your thoughts and future aspirations with me. I know you are going to be a great inspiration to many students and help other girls and minorities see they too can become scientists, professors and leaders. Do you have any parting words for colleagues and others in the optics community on the importance of mentoring and encouraging kids to explore science?

Please do all you can! There are many children out there who do not have mentors at all, and all they need is one person to make a difference in their lives. Science is one of the most fun things to learn, and the earlier kids are introduced to the concepts, the more they understand later. All we have to do is spark their interest, and they will do the rest.



Jennifer D. T. Kruschwitz, President, [JK Consulting](#)

Jennifer is a Sr. Optical Coating Engineer and President of her coating design firm, [JK Consulting](#). She received her Bachelors and Masters Degree in Optics from the University of Rochester in 1989 and 1995 respectively. She has been working in the field of optical interference coatings since 1988. Jennifer has been an active member of OSA since 1990, serving in a variety of volunteer and governance capacities.