34. Relationship Between The Institute of Optics and the Optical Sciences Center

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In 2004 The Institute of Optics at the University of Rochester is celebrating its seventy-fifth anniversary, and the Optical Sciences Center at the University of Arizona is celebrating its fortieth anniversary. While these two optics departments are probably the two best optics education and research units in the world for both undergraduate and graduate students, and there is strong competition between the two departments for both students and faculty, there is a very good friendly relationship between the two departments.

In the early 1960s the Optical Society of America conducted a “Needs in Optics” survey which resulted in a conclusion that the supply of personnel professionally trained in the broad field of optics needed to be increased. At that time The Institute of Optics was the only place in the U.S. where a person could get formal training in optics. The survey recognized that graduate education in optics would be incomplete if students could not participate in advanced research activities, much as was being done at the Institute. The OSA survey inspired Aden Meinel to sought funding to start the Optical Sciences Center. One of the leaders of the OSA survey was Robert E. Hopkins, who at the time was the director of The Institute of Optics. Visits by Hopkins to Tucson and the advice and encouragement he gave Aden Meinel helped the Optical Sciences Center become a reality.

After my junior year in college in 1964 I had a summer job working in optics at Libbey Owens Ford in Toledo. At that time I thought I would go to graduate school in solid state physics, but I found working in optics to be very interesting. Phil Baumeister, who at that time was a faculty member at the Institute, did consulting work for Libbey Owens Ford and as a result I learned about the Institute. Shortly after I went back to Case Institute of Technology for my senior year, I saw my first hologram in senior physics lab. That was it for me. I forgot about solid state physics and I applied to The Institute of Optics for graduate school. When I got to the Institute I found out I was going to work for Parker Givens on holography. I was so happy I felt like I had died and gone to heaven. I was initially in the M.S. program, but I found that I loved optics and the Institute so much that during the first year I switched to the Ph.D. program.
I first heard about the Optical Sciences Center during my first week of being a graduate student at The Institute of Optics in September 1965. Fellow graduate student Robert E. Fischer had spent the summer working at Kitt Peak Observatory in Tucson, and he came back with a large selection of beautiful photographs of the Arizona desert. At that time I had not traveled west of Chicago, but I had watched a lot of western movies and I was always fascinated by the West, and Bob’s pictures of the Arizona desert really excited me about Arizona. He mentioned that the University of Arizona was starting an optics program, and even in my first year of graduate school at Rochester this got me thinking that someday I would like to be part of the optics program at the University of Arizona.

Bob’s photographs attracted a lot of attention at The Institute of Optics; another graduate student, Roy Frieden, saw the pictures and also became interested in Arizona and the optics program that was starting up at the University of Arizona. Roy was graduating in 1966, and he applied for a faculty position at the U. of A. Roy interviewed for the faculty position the beginning of February. He liked very much what he saw at the U. of A., but he was not sure he wanted to leave New York State where he had lived his entire life, plus he liked snow. However, on his flight back to Rochester he could not land in Rochester because of a terrible snowstorm, and he was forced to land in Toronto. He then took a train from Toronto to Rochester, but when he got to Rochester he found that all the roads were closed because of the terrible storm, and the only way he could get home was to walk. The next day he accepted a faculty position at the University of Arizona.

In addition to Roy and myself, there have been a number of graduates of The Institute of Optics who have or have had faculty positions at the Optical Sciences Center. The list includes Jim Eyer (former OSC associate director), Bob Shannon (former OSC director), Chris Koliopoulos, Kathy Creath, and Jim Schwiegerling. Chris received his B.S. degree at Rochester and then his Ph.D. at Arizona; Kathy and Jim received their B.S. and M.S. degrees at Rochester and their Ph.D.s at Arizona. Jim remembers that when he was a sophomore at Rochester in 1987, Duncan Moore mentioned in class that there was this upstart optics program at Arizona. This intrigued Jim so he later decided to come to Arizona for graduate school, where he is now an assistant professor with a joint appointment in ophthalmology and optical sciences.

Jim Eyer was a faculty member at both The Institute of Optics and the Optical Sciences Center; in the early days of the Optical Sciences Center he was the associate director. It is interesting that he left his faculty position at Rochester the week before I became a graduate student there in 1965, and he left his faculty position at OSC the week before I joined the faculty there in 1974.

During my graduate school years at Rochester, Bob Shannon worked at the Itek Corp., and every year he would come to the Institute on a recruiting trip. When I graduated in 1968 he hired me at Itek; shortly after I started to work at Itek, he left to join the faculty at OSC. I was heartbroken, but it

worked out very well for me: in 1974 when I was visiting OSC to hire graduates for Itek, Bob asked me if I wanted to become a faculty member at OSC. I thought about it for less than a nanosecond and then said yes.

Two of the graduates from the Optical Sciences Center have had faculty positions at the Institute, John Rogers and Warren Smith. However, they have both left Rochester—John lives in California and Warren lives in Tucson. I think the Rochester winters were too much for them.
Each year the Optical Sciences Center recruits at least two or three graduate students from the undergraduate program at The Institute of Optics. We have found them to be extremely well prepared and we are always looking for more. Over the years The Institute of Optics and the Optical Sciences Center have become fierce, but friendly, competitors for graduate students. Each year both departments invite the best U.S. students to visit us for a couple of days at our expense. We always have the visit during the month of February and we always end the visit with a wonderful barbecue under the stars at the Tanque Verde Guest ranch. It is a great experience and I look forward to it every year even though sometimes it gets so cold outside late at night at the barbecue that I have to wear a sweater. The Institute of Optics also has its recruiting visit during February, but I guess they do not end the visit with an outside barbecue.

Former Institute Director Dennis Hall has recently had a large impact on progress at the Optical Sciences Center. In 1998 Dennis chaired the external review committee for the Optical Sciences Center. The final report that Dennis wrote helped convince the University of Arizona administration that the Optical Sciences Center had to have more space; as
a result we are now building a 45,000-square-foot addition to our 110,000-square-foot building. Dennis also helped convince the U. of A. provost that we needed to have more control of our undergraduate program; as a result our undergraduate program has grown by more than a factor of three. We very much appreciate Dennis’s help.

I feel that I have been very lucky being associated with both The Institute of Optics and the Optical Sciences Center. Not only have I been a graduate student at the Institute, but I have taught in its summer school for nearly twenty years, and I spent the spring semester of 1983 on sabbatical there. Both places are great, and anyone who gets a degree from either place is indeed fortunate.

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