PHYSICS CAREERS

Laser Surgeon

Laser surgery combines two fields—eye care and high-tech engineering—to give perfect vision to people who otherwise would need glasses or contacts. To learn more about this career, read the interview with ophthalmologist Dr. L. Shawn Wong, who runs a laser center in Austin, Texas.

Dr. Wong makes measurements of the eye in preparation for laser surgery.

What sort of education helped you become a laser surgeon?

Besides using my medical school training, I use a lot of engineering in my work; physics and math courses are very helpful. In high school, even in junior high, having a love of math and science is extremely helpful.

Who helped you find your career path?

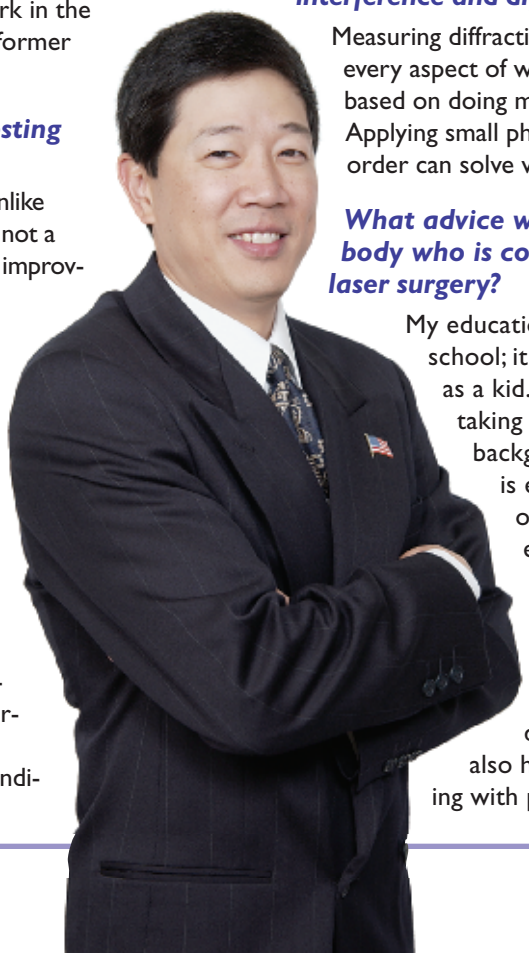
Of all my teachers, my junior high earth science teacher made the biggest impression on me. What I learned in those classes I actually still use today: problem solving. Interestingly, I work in the town where I grew up; a lot of my former teachers are my patients today.

What makes laser surgery interesting to you?

It's nice to be able to help people. Unlike glasses and contacts, laser surgery is not a correction; it's a cure. When you are improving people's vision, everybody in the room gets to see the results. I don't need to tell patients they're doing well—they can tell.

What is the nature of your work?

A typical patient is somebody born with poor vision. We make these patients undergo a lot of formal diagnostic testing and informal screening to be sure they are good candidates. Lasers are used for diagnosing as well as treating. Laser tolerances are extremely small—we're talking in terms of submicrons, the individual cells of the eye.



What is your favorite thing about your job? What would you most like to change about it?

My favorite thing is making people visually free. I would like to be able to solve an even wider range of problems. We can't solve everything.

How does your work relate to the physics of interference and diffraction?

Measuring diffraction and interference is part of every aspect of what we do. The approach is based on doing many small things correctly. Applying small physics principles in the right order can solve very big problems.

What advice would you give to somebody who is considering a career in laser surgery?

My education didn't start in medical school; it started by asking questions as a kid. You need a genuine love of taking on complex problems. A background in physics and math is extremely helpful. Technology in medicine is based on engineering.

Being well rounded will help you get into medical school—and get out, too. You have to be comfortable doing the science, but you also have to be comfortable dealing with people.