

A Space Odyssey

Chuck Chalfant '81 flies high with Space Photonics

A self-proclaimed space cadet, **Chuck Chalfant '81** wanted to be an astronaut.

That dream didn't take off, but his Fayetteville, Ark.-based company Space Photonics certainly has the right stuff, including high capacity optical systems that are now aboard the International Space Station.

A Booneville, Ark., native, Chalfant, who grew up in the United Methodist Church, knew Hendrix was a "really good school."

At Hendrix, he majored in physics.

"Basically my sophomore year, I took a physics class and did OK, and **Dr. Richard Rolleigh '67** said, "You may want to look at physics' so I said 'OK,'" he recalls. "It wasn't an easy major for me. I had a hard time."

Chalfant credits Rolleigh's mentoring with helping him succeed.

"Dr. Rolleigh was probably the best teacher ever, really helpful ... just fantastic," he says.

Chalfant also credits the discipline he developed as a student-athlete on the Hendrix swim team.

"I jumped in the pool, did a 50, and did pretty good," says Chalfant, whose sister **Julie Chalfant Lacy '78** told swim coach Mike Daniel about her brother's pool prowess. Chalfant later swam for Coach Bob Courtway.

"It was pretty much a regimen, but we had tons of fun," he says.

Chalfant, who did not swim competitively as a high school student, originally wanted to play on the basketball team.

"I was going to play basketball, but I realized I might not see a lot of playing time," he says, recalling his classmates **Lawson Pilgrim '81**, **Austin Sullivan '80**, and **T.J. Tacey '80**, who made up one of the school's most successful teams. "They just ruled."

Though modest, Chalfant was no slouch in the pool. He broke an AIC swimming record his first year and the teams he swam on won four AIC championships and competed in four NAIA national meets that produced several NAIA All-Americans, including him.

"We had a lot of fun, and the team did great," recalls Chalfant, who was inducted into the Hendrix Athletic Department's Hall of Honor for outstanding alumni athletes three years ago. "It was a big part of my Hendrix life, and it was really cool."

After graduation, Chalfant was offered a teaching assistantship at the University of

Arkansas, where he focused on laser physics.

"Technically, I was prepared enough," he says. But with classmates from all over the country and the world, it was "intimidating."

His first semester, he was one of five (out of seven) teaching and research assistants who got C's and were placed on probation.

"It was very frustrating," he says. "But I had a competitive nature and did not want to give up."

Chalfant rebounded and received his master's degree in 1985. He left Arkansas for Silicon Valley to work for Lockheed Space Systems in Sunnyvale, Calif. After seven years, he moved to Palo Alto, where he worked for Optical Networks.

He moved back to Arkansas in 1996, still working for Optical Networks. Three years later, the company got an investment from a Silicon Valley venture capital group and decided to no longer do government research and development. Chalfant saw "a window of opportunity" and decided to start his own company.

"The transition was great and we hit the ground running," he says. "I based the whole business on small company R&D, and we're still doing that. We maintained the government customers, including NASA and the U.S. Air Force, and kept that going."

"We're a small high-tech company that does cool things with lasers," he says, describing Space Photonics to a non-physics major.

The company makes fiber optics networks and free-space laser communications terminals for building-to-building and other platforms where fiber optic cable is not available.

“Turning laser beam light on and off really, really fast ... That pretty much sums it up,” he says.

Space Photonics uses materials that can withstand extremely harsh environments, including deep space and earth-orbiting spacecraft.

“Our materials are really good at withstanding the radiation you have when you’re in orbit,” Chalfant explains. “Shielding and materials are critical ... That’s not rocket science, just good business.”

Despite the distance from Silicon Valley, Space Photonics has thrived in the Natural State, Chalfant says.

“Arkansas has been great,” says Chalfant, who praises the state’s tax credits and support from groups like the Arkansas Science and Technology Authority and Arkansas Economic Development Commission.

“With no outside investment, we’ve been able to leverage the R&D we’ve done, which is important. The potential is sizeable with the laser communications technology we have.”

Arkansas legislators have also been supportive of Space Photonics, Chalfant says.

“They played a huge role in our effort to show our technology was going to work,” he says. “They were instrumental in putting us on a critical path from the very beginning.”

Over a five-year period, Arkansas’s Congressional delegation helped bring millions of dollars from the Department of Defense and other sources through line-item projects, which no longer exist.

“If we had tried five years later, we would be years behind and going much slower,” Chalfant says.

Often his own lobbyist, Chalfant says relationships not technology — are the keys to success.

“Early on in a tech career, the focus is on technology. There’s not much understanding of the business aspect,” says Chalfant, who did take some economics courses at Hendrix. “What I learned working with Lockheed and Optical Networks is that human factors dominate. It’s the relationships you have with people. That’s what’s important in business. You can’t rule the world with a big idea or gadget.”

Despite the lack of earmark funding opportunities, Chalfant sees business — in aerospace, space and, more recently, telecommunications and broadband access — going upward.

“There are gobs and gobs of satellites, and they need smart technology to keep operating



at high capacity,” he says.

Space technology is surprisingly 1960s-era, and companies like Space Photonics can help speed it up with optical signaling with lower weights, lower power consumption, and higher data transfer speeds, he says.

Last fall, Space Photonics entered into an exclusive licensing agreement with SCHOTT North America for the commercialization of its patented LaserFire® Free Space Optical Communications Systems, which enable uninterrupted, secure communications for military and intelligence customers. The exclusive part of the license is only limited to SCHOTT’s government and military sales. It’s completely up to Space Photonics on how to handle their approach to the telecommunications and cellular backhaul (e.g. *the data transfer and handling of the signals around and between the cell towers*) markets.

Ironing out the licensing agreement with SCHOTT was “a big learning experience” and “a huge challenge,” he says.

“When there’s something of value and two people negotiating about it, it’s very interesting,” says Chalfant, noting that his patent attorney is fellow Hendrix physics major **Chuck Daugherty ’91** and “the most awesome patent attorney I could ever ask for.” Space Photonics has four patents, including LaserFire®, with more anticipated for next year, along with five trademarks.

“It has taken years to make it work,” he says. “But it should be big winner.”

“It’s hard to see beyond five years because 80-90 percent of the business is reactive. That’s just the way it is, and that’s been the fun part. You have to keep your eyes open year to year and take advantage of opportunity. I’ve taken risks and fought my way through it. I’ve just been lucky. Serendipity is my middle name,” Chalfant says. “We have a lot of fun, and now we have a chance to go somewhere ... I’m charged up every day.”

Story by Rob O’Connor ’95, Managing Editor