

PETER FREY

Chemistry professor's research turns into 'bonding experience'

Greg Robinson's two great loves in college were football and chemistry. He was all-conference on the gridiron, but his breakthroughs in UGA chemistry labs are making waves the world over.

by Phil Williams (ABJ '72)

First-time visitors to Greg Robinson's office on South Campus might be forgiven for thinking they are in the wrong building. For one thing, Robinson doesn't look like your prototypical chemistry professor—with his athletic physique, he looks more like the top-flight college football player he was two decades ago at Alabama's Jacksonville State University.

But make no mistake. Robinson is one of the top young chemists in America. His name exploded on the chemistry world in 1997 when he and colleagues in his lab reported the first evidence of a new bonding procedure between atoms of the element gallium, a silver-white metal whose compounds

are sometimes used as semiconductors in the computer industry. Robinson and his team reported in the *Journal of the American Chemical Society* the synthesis and characterization of the first "gallyne," a new organometallic compound containing a gallium-gallium triple bond.

Robinson's ideas about the triple bond began taking shape in 1994 during a nine-month stint in Berlin as a Humboldt Fellow, a program that pairs promising non-German scientists with German full professors. Beyond picking up a smattering of German language and a new outlook about culture, which he admits was previously "myopic," Robinson's time at the Technical University of

Berlin allowed him to brainstorm his revolutionary idea. “We had no success there,” he says, “but it gave me a chance to think critically about the ways to bind gallium.”

The shock waves from Robinson’s discovery had barely subsided when his lab announced another one: the synthesis of a compound composed of a new way to bond iron and gallium. The two reports drew support as well as skepticism from chemists worldwide, but evidence is growing that the work in Robinson’s lab was not only correct but also path-breaking.

In 2002, Robinson and four other current or former UGA chemists received National Science Foundation funding to continue work in the new field they created. The award was part of a new program to bring together established researchers in the spirit of collaboration. The \$2.5 million, five-year grant—longer and more generous than a typical NSF award—is meant to encourage intellectual freedom between experimental and theoretical scientists.

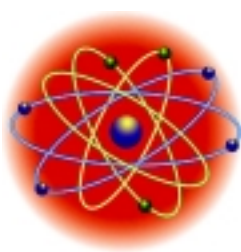
“This is difficult work in the sense that there is no map,” says Robinson. “We are the first ones going down this road and there is high risk but also potentially high pay-offs.”

Robinson’s excitement when he talks about his work is palpable, but he also seems somewhat amazed at how far his career has come since he was a boy growing up with three older sisters and two younger brothers in the tiny town of Alexandria, Ala.

“Neither of my parents attended college, but my grandfather, Walter Lee Howard, did attend college in Tennessee,” says Robinson. “He was one of the most intelligent men I have ever known.”

In his first few years as a student, Robinson attended segregated schools. After the schools were integrated, he used his size, speed, and natural athletic talent to become a highly acclaimed football and basketball player. He played quarterback on the Alexandria High School football team and was a talented performer on the hardwood as well. Even though his ACT score was marginal, he knew that he wanted to attend college, and he realized early that his main interest lay in science. He left for Jacksonville State in 1976.

Playing football and majoring in chemistry was a strain, but Robinson found that he responded well to the challenge. By the time he had graduated from college in the spring of 1980, he had not only been selected conference defensive player of the year but had also received honorable mention on the UPI All-American football team.



Robinson discovered a new bonding procedure between atoms of the element gallium, whose compounds are sometimes used as semi-conductors in computers.

“I really didn’t have a master plan for my future at that time,” he says. “But when I was a senior, a chemistry professor from the University of Alabama, Jerry Atwood, came to our campus to speak on some aspects of aluminum chemistry—and I was really taken with his work.”

So it was off to a new university for graduate school. After earning his doctoral degree in Tuscaloosa in 1984, Robinson’s next move was not clear at first, owing to the fact that chemists who work in industry do challenging work and earn superb salaries. But Robinson felt a clear calling to teaching and university-based research. In 1985, he accepted a position as an assistant professor of chemistry at Clemson. He rose through the academic ranks to full professor at Clemson, then came to UGA in 1995.

While Robinson has worked hard to achieve excellence in his fields, he is acutely aware that relatively few African Americans enter academic chemistry.

“I read an article several years ago that stated of the 1,600 students awarded Ph.D.s in chemistry in the United States that year, only 16 were African Americans,” he says. “I clearly have an opportunity to tell students that with determination and perseverance they can go a long way.”

A 2001 survey conducted by University of Oklahoma chemistry professor Donna Nelson showed that the top 50 chemistry departments in the United States employ just 14 Hispanic, 13 African American, and three American Indian chemistry professors.

Quoted in several stories regarding that survey, including *Black Issues in Higher Education* and a publication from the American Association for the Advancement of Science, Robinson feels that affirmative action has become a bad word and that having a diverse faculty is not a high enough priority—particularly in the nation’s academic chemistry departments. He concedes that “chemistry is a tough road to hoe,” but doesn’t accept the argument that a small talent pool explains the scarcity of African Americans in top chemistry departments.

“In my experience,” he says, “the progressive ideals and positive attributes of a diverse faculty frequently touted by university administrators are rarely observed at the college and departmental levels. However, I remain hopeful that meaningful change will take place.”

Phil Williams (ABJ '72) is editor of *The Franklin Chronicle*.