

From Bell Labs to BU

New ENG mechanical engineering chair hopes to nurture collaboration, diversity

Alice White spent three decades at Bell Labs, where she rose from postdoctoral fellow to chief scientist.

tonics research, vice president of the Physical Technologies Research Center, and president of the New Jersey Nanotechnology Consortium. She was also active in efforts to improve K-12 science education by advancing Bell's participation in science fairs and spearheading employee-led youth robotics teams.

The author of more than 135 publications, White holds five patents and has broad expertise in telecommunications-related areas, among them materials science, semiconductor processing, and nanofabrication. One of her major achievements is the invention of mesotaxy, a technique in which a crystalline metal layer is grown inside a silicon wafer by bombarding it with metal ions. If created on a large scale, the layers could lead to application in a new generation of electrical circuit components.

Although international students are flocking to engineering (nearly half of ENG's graduate students are from outside the United States), the field appears to be less appealing to young Americans. "It's almost a crisis," says White, and one that's escalating even as engineering jobs beckon. In a 2012 *Forbes* magazine report on the 15 most valuable college majors, 5 engineering fields were represented.

White has devoted considerable energy to attracting more women and minorities to the field. According to the Society of Women Engineers, women earn just 20 percent of undergraduate degrees and a 2007 National Science Foundation study found that African Americans accounted for only 6 percent of the nation's engineering graduates. ss



CYDNEY SCOTT

ALICE WHITE RECALLS A RECENT conversation with a neighbor, a kindergarten teacher who won a presidential award for teaching science. "I mentioned that I was joining the College of Engineering at BU," says White, the new chair of the mechanical engineering department. "And the teacher asked, 'What's engineering?'"

When White described some of the things that engineers do, the teacher realized that many of her lessons, like encouraging her small charges to investigate why some objects sink and some float, are the essence of engineering. From tinkering under car hoods to digging moats for sand castles, engineering pervades our lives.

So why—with the exception of some from sexy fields like robotics—does engineering continue to dwell at the monochromatic margins of the scientific and academic lexicon?

"You don't really hear the word engineering in school unless your parents happen to be engineers," says White, who comes to BU after three decades at Bell Labs, where she rose from postdoctoral fellow to chief scientist. She is an expert on photonic device technology, among many other subjects, so it's fitting that part of her BU mission is to shine a light on engineering itself.

"Dr. White is the consummate interdisciplinary scientist, with an extraordinary record of high-impact research and innovation while leading one of the world's most prestigious corporate research laboratories," says Kenneth R. Lutchen, dean of ENG. "These skills translate excitingly for our mechanical engineering department, and almost all these areas intersect with strengths in other departments throughout the college."

White's positions at Bell Labs included director of integrated pho-