

UT Receives NSF Award to Commercialize Discovery

KNOXVILLE — Jimmy Mays, a chemistry professor at the University of Tennessee, Knoxville, has developed a substance that promises to replace conventional rubber in many products with something that is stronger, greener and easier to recycle. Now he's joining forces with the College of Business Administration's Anderson Center for Entrepreneurship and Innovation to turn his new discovery into a game-changing business.

UT will receive \$600,000 over two years from the National Science Foundation through its "Partnerships for Innovation" program to commercialize and optimize Mays' newfound "superelastomers." This is UT's first NSF award focused on commercialization of research, and it is the Anderson Center's first NSF award.

Superelastomers are polymers that can be repeatedly stretched without permanently deforming the shape of the material. They can be stretched further than ordinary elastomers (or rubbers). What makes superelastomers "super" is that they hold promise for improved strength, recyclability and more efficient processing of materials used in many different products. This revolutionary new concept would open up applications in many areas, such as toothbrushes, gloves, skin care, audio devices and filtering technologies.

"For example, the high strength and superior elastic properties of superelastomers make it possible to make thinner surgical gloves, thus enhancing the surgeon's dexterity in the operating room," Mays said. "Conventional rubbers, like car tires, are virtually impossible to recycle. In contrast, superelastomers may be readily recycled just by melting the scrap material and re-shaping it into a new product."

Thus, the innovation will have the capability of reducing the worldwide carbon footprint by replacing rubbers with a material that is both recyclable and requires less energy to make.

MBA students and faculty will work with Mays' students to assess the market for his technology and develop business plans for pursuing specific market opportunities. The typical team will consist of two students studying entrepreneurship and two technical students who will work with small businesses and experienced mentors to validate the market viability. About 24 interdisciplinary students will get hands-on experience in market assessment, business planning and technology transfer required to launch a successful technology-based start-up.

"By pairing business with technical students, we expect that



Jimmy Mays, right, shows Joy Fisher the mechanical strength of a piece of Superelastomers material.

innovation capacity will be increased at the university," said Joy Fisher, who oversees the center's technology commercialization efforts. "This will be done through the introduction of successful new businesses based on technologies that solve a market problem. We plan to use this program as the basis to develop a new, cross-college entrepreneurship course that will help us continue building an entrepreneurial talent pool in the region."

UT's Partnerships for Innovation also aim to stimulate the local and national economies by creating new jobs and the transformation of knowledge created by the research and education enterprise. The program has already partnered with five companies.

"The goal of the Partnerships in Innovation program is to increase the country's competitiveness," Mays said. "The successful commercialization of this innovation has the potential to grow existing businesses and create new ones by innovating new products. It also will accelerate the transfer of future technologies from universities into the marketplace and contribute to the education of both existing and next generation entrepreneurs."

The superelastomers were discovered with the help of Roland Weidisch of Fraunhofer Institute in Germany and Samuel Gido of the University of Massachusetts Amherst. UT's Partnerships for Innovation project is in collaboration with Anderson Center for Entrepreneurship and Innovation, UT Office of Research, the UT Research Foundation, Asius Technologies, BBB Elastomers, Ina-Mei Skin Care, Fuji Film, MAPA GmbH, Technology 20/20 and Venture Incite.