



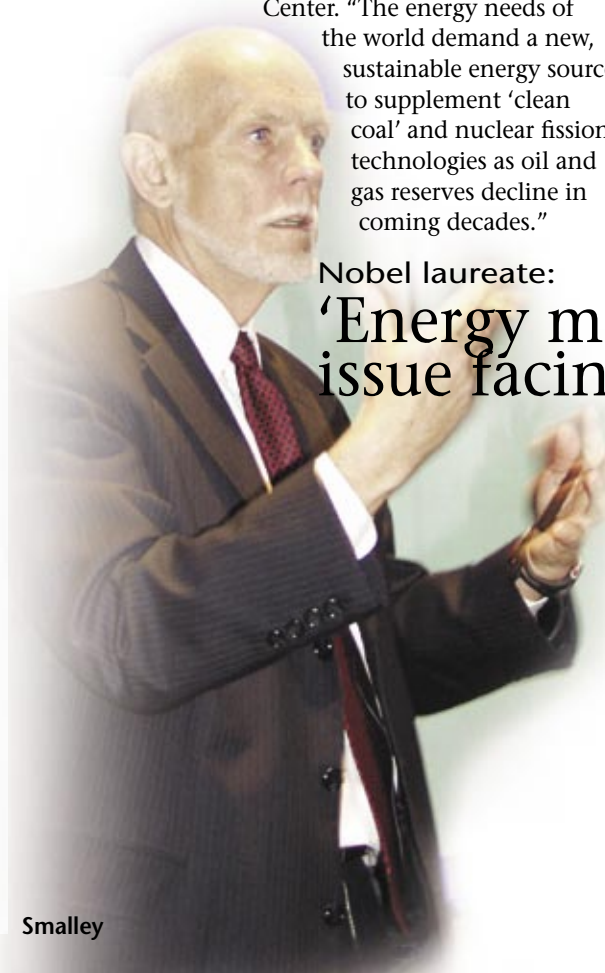
Desch (center front) hits the books as a UD student.

The code-breaking genius of Joseph Desch '29 is a secret no longer. The documentary *Dayton Codebreakers* premiered in a packed Boll Theatre April 15 and aired a week later to even larger audiences on Dayton's PBS station, ThinkTV. Desch designed the Bombe, which broke German U-boat coded messages during World War II. His daughter, UD graduate Debbie Desch Anderson, and journalist Aileen LeBlanc produced the film and hope for national distribution.

He came to campus to talk about buckytubes. But Richard Smalley, 1996 Nobel Prize co-winner in chemistry, had more urgent messages to convey.

"Energy is the single most critical challenge facing humanity in this century," Smalley told the standing-room only audience Nov. 18 in the Science

Center. "The energy needs of the world demand a new, sustainable energy source to supplement 'clean coal' and nuclear fission technologies as oil and gas reserves decline in coming decades."



Smalley

Nobel laureate: **'Energy most critical issue facing humanity'**

The solution, in his view, is a combination of nuclear energy, solar energy and developing nanotechnology that will allow distribution channels to carry energy more effectively.

Smalley, a physics and chemistry professor and director of the Carbon Nanotechnology Laboratory at Rice University, was awarded the Noble Prize for the discovery of fullerenes, complex molecular forms of carbon in which the atoms are arranged in close shells in the form of balls. When linked together, these "buckytubes" have the critical new ability to conduct electricity better than copper at one-sixth the weight.

Smalley is looking to the day when buckytubes can be cut into pipe-shaped pieces and

attached to a catalyst to grow thousands of times longer. When spun together, these fibers could conduct electricity more efficiently, allowing for a worldwide, distributed storage and generation grid.

"The fact that we can make a way of conducting electricity, either AC or DC, that will make aluminum and copper seem silly ... is enough to motivate people. I wonder, if it's really this good, why don't we treat it more seriously? Part of the reason I'm up here is to change that."

His talk, a seminar for the materials engineering graduate program that drew audiences from across the Miami Valley, was meant to encourage scientists and raise awareness necessary to garner research support from around the world.

—Lesley Whalen '05

Dayton firmly on the Third Frontier

UD is sharing in a \$22.5 million grant that will help establish the Center for Multifunctional Polymer Nanomaterials and Devices. The Ohio Third Frontier Project grant, announced May 10, will fund equipment for the center based at Ohio State University in Columbus with branches

at UD and the University of Akron. UD's facility will focus on nanocomposites.

Third Frontier grants are designed to build Ohio's new technology infrastructure and generate products and related jobs.

Ohio Gov. Bob Taft also awarded two Ohio Third Frontier grants totaling \$3.1



Gov. Bob Taft with Andrew Sarangan

million to UD for the development and commercialization of nanomaterials and other emerging technologies Dec. 6 in the University of Dayton Science Center.

From the December grants, the state expects business growth of close to \$100 million and the creation of 360 jobs.

Andrew Sarangan, assistant professor of electro-optics, received \$1 million for the development and commerciali-

zation of long-wave infrared imaging. Khalid Lafdi, UD Research Institute carbon group leader and professor of mechanical engineering, and Brian Rice, UDRI composites group leader, received \$2.1 million to produce carbon materials that can be transitioned to Ohio companies for production.

For more information, see <http://engineering.udayton.edu/daytonengineer>.