



## CAREER Award Aids Schubert's Nanomaterials Research

By Ashley Washburn, '02

**E**va Schubert's laboratory is brimming with possibilities.

Schubert, a University of Nebraska-Lincoln materials scientist, is one of a handful of people in the world studying the potential for harnessing a unique type of nanomaterial known as hybrid chiral nanostructures. Her complex basic research could lead to diverse practical applications in advanced computing, electronics and solar cells or batteries.

"Right now, there is so much that is unknown," said Schubert, an assistant professor of electrical engineering. "And hybrid chiral nanostructures have a tremendous potential for making new materials and for unique applications."

Schubert earned a five-year, \$400,000 Faculty Early Career Development Award for this research. The National Science Foundation gives CAREER awards to outstanding pre-tenure faculty to help them develop as teacher-scholars and researchers.

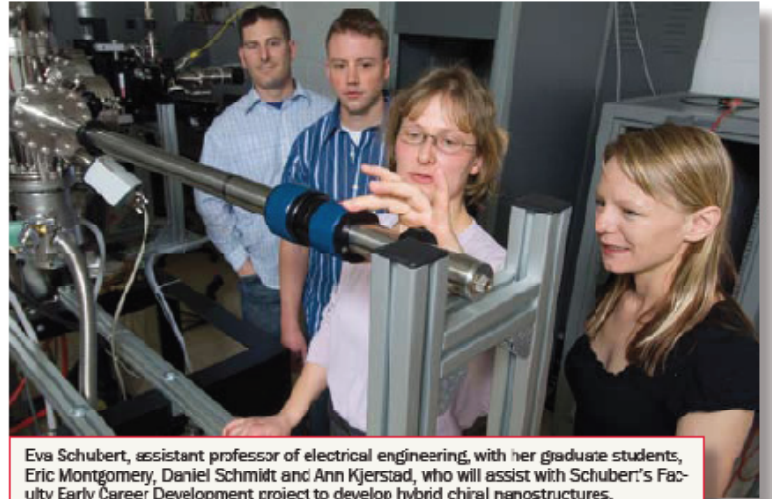
Her research aims to improve the functionality of chiral hybrid nanomaterials and to test how they per-

form in new types of electronic devices. The word chiral means that the materials are mirror images that are identical but not superimposable, like human hands. She's designing novel hybrid nanomaterials by combining chiral materials and polymers and is studying how to use the unique properties of these new materials. She's focusing on using these materials in electromagnetic devices, such as terahertz antennas and magnetic memory systems for computers.

Examples of potential commercial applications include storage for library databases, security scanners and biomedical devices.

"It's a hot research field that people are really excited about. I hope we can make a contribution," she said.

Photo by Brett Hampton



Eva Schubert, assistant professor of electrical engineering, with her graduate students, Eric Montgomery, Daniel Schmitt and Ann Kjerstad, who will assist with Schubert's Faculty Early Career Development project to develop hybrid chiral nanostructures.

Jerry Hudgins, chair of the Department of Electrical Engineering, said Schubert's CAREER award could potentially open doors for additional funding.

"This award recognizes the excellence of our faculty and adds to the strength in our department and the university in advanced materials research," he said.

In addition to research, the CAREER funding will

enable Schubert to promote education in the science, mathematics and technology fields. She will lead a nanotechnology workshop for middle school students as part of the Lincoln Public Schools' Bright Lights summer enrichment program. It's important for students to learn about nanotechnology early so they can plan ahead and take advanced courses in high school that prepare them for college and beyond, she said.

"This is the field that the next generation will be working in if they seek careers in science and engineering," Schubert said.

She also is creating an e-mentoring system that helps female students in high school and middle school contact UNL engineering faculty and students to learn about engineering majors and career opportunities.

Schubert also is developing a new graduate course in materials research and an international student exchange program with the University of Linköping in Sweden.

She received her diploma degree in 1994 and her doctoral degree in 1998 from the University of Leipzig in Germany. Schubert completed her postdoctoral work at UNL in 2000, under the direction of John Woollam, George Holmes Distinguished Professor of Electrical Engineering. She held several positions at the Leibniz Institute for Surface Modification in Leipzig before returning to UNL in 2006. ■