

2008 WILLIAM G. LOWRIE LECTURER

Carol Hall

**Camille Dreyfus Distinguished University Professor
North Carolina State University**



Professor Carol K. Hall is the Camille Dreyfus Distinguished University Professor of Chemical and Biomolecular Engineering at North Carolina State University. She received her B.A. in physics from Cornell University and her Ph.D. in physics from the State University of New York at Stony Brook. After postdoctoral training in the Chemistry Department at Cornell and a brief period as an economic modeler at Bell Laboratories, she joined the Chemical Engineering Department at Princeton University in 1977 as one of the first women to be appointed to a chemical engineering faculty in the U.S. In 1985 she joined the Chemical Engineering Department at North Carolina State University.

Hall's research focuses on applying statistical thermodynamics and molecular-level computer simulation to topics of chemical, biological or engineering interest involving macromolecules or complex fluids. Current research activities include modeling of: polymer adsorption on heterogeneous surfaces, self assembly of dipolar colloidal particles, self assembly of nanoparticles for the delivery of cancer drugs, solid-fluid phase equilibria, hybridization of DNA on microarrays, and the formation of fibrils and other molecular aggregates of peptides and proteins. She is the author of over 190 publications, is a Fellow of the American Physical Society and was elected to the National Academy of Engineering in 2005.

WILLIAM G. LOWRIE LECTURES Chemical and Biomolecular Engineering Lecturer: Dr. Carol Hall

Lecture I: May 1, 2008

Room 207, Koffolt Lab, 11:30 AM

Reception before the Seminar, Room 336, Koffolt Lab, 11:00 AM

LECTURE I: Thermodynamic and Kinetic Origins of Alzheimer's and Related Diseases: a Chemical Engineer's Perspective

The pathological hallmark of more than twenty neurodegenerative diseases, like Alzheimer's, Parkinson's and the prion diseases, is the presence within the brain of plaques containing ordered protein aggregates called fibrils. It is not yet known why these structures form in some individuals and not in others, or whether the plaques are toxic or Nature's way of sequestering toxic species. Dr. Hall will describe current thinking on the scientific underpinnings for this phenomenon, and her computational efforts to contribute to our knowledge of how and why proteins assemble into fibrils.

Lecture II: May 2, 2008

Room 330, Koffolt Lab, 10:30 AM

LECTURE II: Confessions of an Ordinary Teacher --- Dealing with the Big Fish

Professor Hall will describe the evolution of her attitude towards undergraduate teaching and its parallels with her attitude towards life: high points, low points, lessons learned, and the big fish.