

REMARKS BY GEORGIA TECH PRESIDENT G. WAYNE CLOUGH
Present Distinguished Professor Award to Mostafa El Sayed
Faculty-Staff Awards Luncheon, April 11, 2007

I want to begin by paying tribute to the classes of 1934 and 1940, who provided us with the means to honor and reward outstanding performances by the Georgia Tech faculty. When our alumni see the value of their Georgia Tech education demonstrated in their careers, they invariably identify our superb and hard-working faculty as the critical factor in that education. The classes of 1934 and 1940 understood how important it was to encourage and recognize excellence demonstrated by the faculty, and the endowments they created are what make Georgia Tech's top faculty awards possible.

With so many excellent faculty to choose from, narrowing the field down to one person to receive Georgia Tech's highest faculty honor is always a challenge. But each year, the committee sorts through the many outstanding nominations and comes up with just the right recommendations for the Distinguished Professor Award. And as I look at the finalists, I am always impressed and amazed at the incredible caliber of faculty we have here at Georgia Tech.

This year the winner of the 2007 Distinguished Professor Award is an internationally renowned and respected research scholar whose career has spanned more than 40 years. Mostafa El-Sayed was on the faculty at Harvard, Yale, Caltech, and UCLA before he came to Georgia Tech in 1994. What attracted him here to Tech after serving on the faculties of so many prestigious universities, was our openness and encouragement to engage in a wide array of genuinely interdisciplinary research. And it did not take long for Georgia Tech to feel the impact of his leadership.

He came to us as the Julius Brown Professor of Chemistry and Biochemistry, which is one of Georgia Tech's oldest endowed chairs. And he came specifically to establish the Laser Dynamics Lab, of which he is the director. That is when he says the future began.

The Laser Dynamics Lab gave Mostafa the opportunity to work with colleagues and students from a wide variety of disciplines in using lasers to study and energize chemicals and materials. Energy is an important dynamic in chemical reactions, and lasers provide efficient, focused energy that can be precisely controlled. As a result, they are a valuable tool in helping scientists understand and transform materials at the nano-level.

Lasers opened the door for Mostafa El-Sayed to enter the world of nanoscience, and he stepped through that door with great enthusiasm. He uses lasers to define and measure the properties of materials at the nano-level; to transform them, creating new materials; and then to make images of the motion of the molecules of these new materials. He says he is fascinated by this growing ability to see new materials with new properties take shape in front of his eyes, and to measure them and try to explain them.

His work ranges from exploring new materials for the next generation of computers to pioneering new ways to detect and potentially treat cancer. He is collaborating with his son, a professor at the University of California, San Francisco, in ground-breaking research using nanorods made of gold that bond with cancer cells. The gold nanorods illuminate the cancer cells so they can be identified with a simple microscope. In the process the cells are weakened, enabling them to be destroyed by low-powered lasers. The goal for the future is a medical technique that identifies cancer cells and paves the way for them to be destroyed without causing damage to surrounding tissue.

Ground-breaking work like this is what earned Mostafa El-Sayed the 2002 Irving Langmuir Award in Chemical Physics. This award is given by the American Chemical Society and the American Physical Society, and is considered the highest honor of both societies. He is also Georgia Tech's first member of the National Academy of Sciences, and he is an elected Fellow of the American Association for the Advancement of Science, the American Academy of Arts and Sciences, and the American Physical Society. Originally from Egypt, where he completed his undergraduate degree before earning his Ph.D. at Florida State University, he has been a visiting scholar at the University of Paris and the Technical University of Munich. He has also served as editor-in-chief of *the Journal of Physical Chemistry*. He has many more honors and awards, and the list of his publications is too long to recount here.

But he still does something that faculty of high stature at major research universities seldom deign to do and certainly are not expected to want to do. He teaches undergraduate students. What's more, every year he teaches at least one semester of freshman chemistry. In fact, he has said that when he loses interest in teaching undergraduates, he will know it is time to retire.

Mostafa says he enjoys the feeling of giving something of himself to his students through teaching, and he is delighted when freshmen embrace the discipline of chemistry under his tutelage, and begin to understand and speak its language. He also values the honesty of youth, noting that teaching undergraduates provides him with instant feedback. If he is connecting with them, he says he can see it immediately in their eyes and in their faces. If he has lost them, he can see that just as quickly. In fact, he says instant feedback is part of what makes teaching fun.

For their part, Mostafa's students will tell you that it is a fantastic experience to take a class from a renowned scientist in their freshman year – to witness the passion and enthusiasm he has for his chosen field and to feel like their class is just as important to him as his research.

Mostafa has been a leader and role model here at Georgia Tech as we have worked to make the undergraduate experience more dynamic, and forge connections between undergraduate education and the energy of our research enterprise. And it is exciting to see our retention and graduation rates increase as we give more focused attention to enhancing the undergraduate experience.

Mostafa El-Sayed has passed the age when most people retire to play golf or sit in a rocking chair on the porch sipping iced tea or mint juleps. But he still keeps a vigorous work and teaching schedule, and his enthusiasm and devotion to his students and his research continue to be an inspiration to his younger colleagues, including me.

It is a great pleasure to have this opportunity to thank Mostafa for the tremendous contribution he has made and continues to make to Georgia Tech – as an outstanding teacher and an international leader and pioneer in the field of chemical physics. It is with a great deal of pride that I present Georgia Tech’s highest honor, the Distinguished Professor Award, to Dr. Mostafa El-Sayed.