

James Engstrom and Derek Tan Are Named Members of the Field of Chemistry



The department is pleased to announce the addition of James R. Engstrom and Derek S. Tan to the graduate field of chemistry.

James R. Engstrom, associate professor in the School of Chemical and Biomolecular Engineering, received his B.ChE. at the University of Minnesota in 1981 and his Ph.D. from the California Institute of Technology in 1987.

Engstrom is widely recognized for his work concerning molecular beam scattering of thin film precursors from semiconductor surfaces, and fundamental studies of thin film deposition, making use of precisely controlled beams of molecular and/or atomic species, with applications in silicon-based microelectronics, and, more recently, molecular electronics.

Engstrom was granted a leave of absence starting in 1998 to join the technical management team of an exciting start-up firm, Symyx Technologies. Despite a very enjoyable stay at Symyx, he returned in 2001 to his true calling, educating undergraduate and

graduate students at Cornell. Due in part to the invaluable experience he gained in industry he is currently establishing a research area for his group that involves work on microchemical systems. The focus is on both fundamentals and applications of these systems in point-of-use chemical production, high-throughput screening, and acceleration of the research and development cycle.

Engstrom has received several awards including the National Science Foundation Presidential Young Investigator Award, a Lilly Endowment Teaching Fellowship, the Cornell University College of Engineering Teaching Award, and a STA Nuclear Fellowship from the Science and Technology Agency of Japan. He also holds 1 patent, and no less than 5 have been filed recently or are in preparation for filing.

Derek S. Tan, assistant professor at the Memorial Sloan-Kettering Cancer Center, received his B.S. from Stanford University in 1995 and his Ph.D. from Harvard University in 2000. After receiving his Ph.D., Tan was very excited about going into academic science, where he could start his own lab and work on more of his own ideas. "Rather than going the industrial route, I liked the flexibility and the freedom you have in academia," he notes. Tan accepted a post-doctoral position with Samuel Danishefsky at Sloan-Kettering Institute. He became a member of the faculty in 2002.

Research in his lab is focused in the area of diversity-oriented organic synthesis. Tan and his group are developing syntheses of broadly diversified libraries of small molecules that incorporate

key structural elements of natural products. They hope to use these libraries to identify new small molecule biological probes, particularly for targets for which no structural or mechanistic information is available to guide the design of such molecules. Because the methods developed for target-oriented synthesis of these natural product substructures are often unsuitable or inadequate for diversity-oriented synthesis, the group is developing new synthetic strategies to access these compounds.

The lab's long-term goal is to evaluate the effectiveness of their strategy by synthesizing a number of moderately sized libraries (500–5,000 compounds each) and testing them in a range of high-throughput screens in collaboration with other laboratories in the Tri-Institutional Research Program.

Tan received a Damon Runyon Cancer Research Foundation Postdoctoral Fellowship while at Sloan-Kettering and received the National Defense Science and Engineering Graduate Fellowship and the Roche Graduate Fellowship in Organic Chemistry during his studies at Harvard University.

