THE KAVLI PRIZE

BIOGRAPHIES NANOSCIENCE

Donald M. Eigler and Nadrian C. Seeman

Donald M. Eigler

Donald M. Eigler got both his bachelor's degree and Ph.D. from the University of California San Diego, while enjoying surfing in his spare time. He completed his post-doctoral work at AT&T Bell Laboratories before joining IBM at the company's Almaden Research Centre in San Jose, California, in 1986.

He is described as a patient, methodical scientist who is happy getting his hands dirty, building his own equipment and components, and restoring cars as a hobby. It took him 18 months to build the low temperature, ultra high vacuum scanning tunnelling microscope (STM) that he used to claim his place in history as the first person ever to move and control a single atom. The enthusiasm with which he approached this work is recorded in his lab notebooks. After refining his method so that he could lift atoms off a surface rather than dragging them with the STM probe tip, he wrote in large bold letters: "I'm really having fun!!"

Eigler's imaging of electron wave patterns in his demonstrations of quantum corrals earned him the front covers of Science, Physics Today and Nature, all within the space of a few months. He has been recognised for his accomplishments with the Davisson-Germer Prize, the Dannie Heineman Prize, the Newcomb-Cleveland Prize, the Grand Award for Science and Technology and the Nanoscience Prize. He is a fellow of the American Physical Society and the American Association for the Advancement of Science. In 2004 he was elected a member of the Max Planck Society in Germany.

Eigler frequently speaks in public about the relationship between nanotechnology and society. He lives in the Santa Cruz mountains with his wife Roslyn and in his spare time trains dogs to help the disabled.

Nadrian C. Seeman

Nadrian C. Seeman gained his Ph.D. at the University of Pittsburgh in 1970. He did his postdoctoral training at Columbia University and MIT, before going to work at the State University of New York at Albany before joining the Department of Chemistry at New York University in 1988. He has been there ever since. In 2001 he was made the Margaret &Herman Sokol Professor of Chemistry at NYU.

Seeman had his Eureka moment while drinking a beer in a pub at the State University of New York in Albany where he was working as an X-ray crystallographer. An image of flying fish called Depth by the artist M. C. Escher popped into his head, triggering a mental comparison to DNA molecules with six branches. This inspired his efforts to devise ever more complex self-assembling structures from synthetic DNA strands. The research field he invented, structural DNA nanotechnology, is the now subject of research by hundreds of scientists in over 50 laboratories around the world.

Seeman has published over 240 research papers, and has been awarded the Sidhu Award, the Popular Science Magazine Science and Technology Award, the Feynman Prize in Nanotachnology, the Tulip Award in DNA-based Computation, the Nano50 Innovator Award, the Biotechnology Award and the Nichols Medal. He was the founding president of the International Society for Nanoscience, Computation and Engineering.

He strongly believes that in the potential of his research to lay the foundations for the quantum computing components of the future. Seeman was elected as a fellow of the American Association for the Advancement of Science in 1998 and as a fellow of the Royal Society of Chemistry in 2005.

By Nic Fleming, science writer

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The Kavli Prize
www.kavliprize.no

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