



Press Release

The 2013 HFSP Nakasone Award goes to Stephen Quake of Stanford University

The Human Frontier Science Program Organization (HFSP) is pleased to announce that the 2013 HFSP Nakasone Award has been conferred upon Stephen Quake of Stanford University for his pioneering inventions and discoveries that made innovative physical techniques available for biology and that are revolutionizing biophysics, biological automation, genome analysis, and personalized medicine. His work is making it easy to answer and, in some cases, to ask questions that were previously impossible to address, and has a profound impact on nearly every area of biology.



The HFSP Nakasone Award was established to honour scientists who have made key breakthroughs in fields at the forefront of the life sciences. It recognizes the vision of former Prime Minister Nakasone of Japan in the creation of the Human Frontier Science Program. Stephen Quake will present the HFSP Nakasone Lecture at the annual meeting of HFSP awardees to be held in Strasbourg, France, in July 2013.

Through his work Stephen Quake developed key technologies that enabled advances in a broad range of fields from single molecule biophysics to molecular biology and microbial ecology. New large-scale quantitative approaches are revolutionizing nearly every aspect of the biological sciences. Stephen Quake is directly responsible for a truly remarkable number of these innovations, which is reflected in the large number of widely cited papers and patents he has published.

Quake and his group developed a precision method for time-resolved force spectroscopy called FemtoNewton Force Spectroscopy which enables a deeper understanding of both colloidal hydrodynamics and DNA force fluctuations. He was also the first to demonstrate single molecule DNA sequencing, followed by its successful commercialization as not only the first single molecule sequencer, but also the first sequencer of any kind capable of sequencing the human genome with a single instrument.

His pioneering efforts extend to the field of microfluidics and its application to biophysics. Microfluidics, which is essentially miniaturized plumbing, offers the possibility of solving outstanding automation issues in biology and chemistry. Stephen Quake's basic research in this area has led to the development of new biophysical measurement technology and its application to a broad variety of questions. One of his seminal contributions in this field was the development of the first microfluidic large-scale integration, fabricating chips with thousands of mechanical valves, fundamentally redefining the field.

Steven Quake has used this new technology to explore a number of questions of fundamental biophysical interest, such as the development of physics-based approaches to protein crystallization and structural biology, the application of molecular affinity measurements to large-scale mapping of transcription-factor binding properties, and the development of single cell genomics.

Stephen Quake is Professor of Bioengineering and a Howard Hughes Medical Institute Investigator at the James H. Clark Center, Department of Bioengineering at Stanford University, California, USA. His work has been honored in the past by prestigious awards including the 2012 Lemelson-MIT prize.

The HFSP Nakasone Award was established in 2010. Previous recipients have been Karl Deisseroth (2010), Michael Elowitz (2011), and Gina Turrigiano (2012).

The Human Frontier Science Program Organization was founded in 1989 to support international research and training at the frontier of the life sciences and on creating opportunities for young scientists. It is supported by contributions from Australia, Canada, France, Germany, India, Italy, Japan, Republic of Korea, New Zealand, Norway, Switzerland, the United States of America, the United Kingdom and the European Commission, which represents the non-G7 states of the European Union. With its collaborative research grants and postdoctoral fellowship programs it has supported approximately 5500 scientists from 65 countries over the last 20 years.