

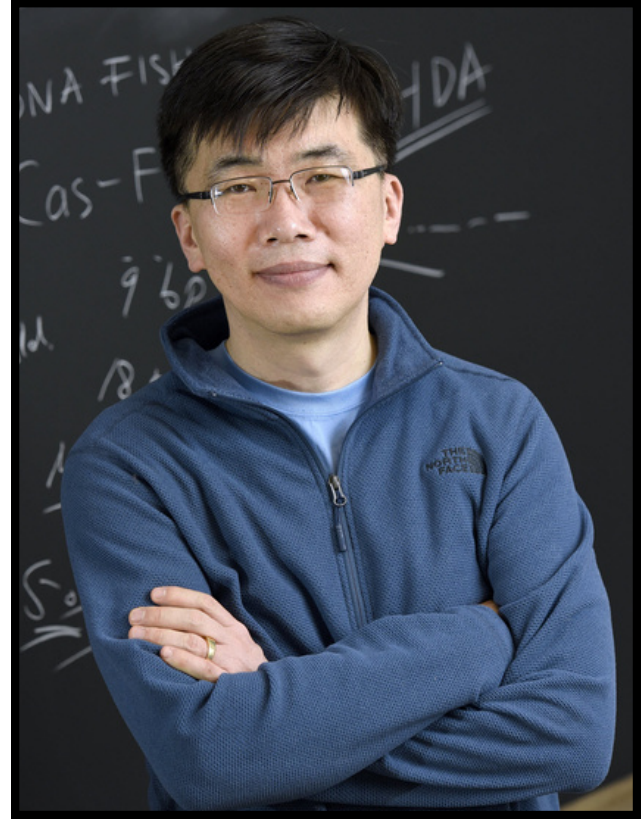
Thursday, April 11, 2024

Refreshments at 3:15pm outside PSF 101
Colloquium from 3:30pm - 4:30pm in PSF 101

From Single Molecules to Cellular Decision Making: Connecting the Scales Using Mechanical Force

Professor Taekjip Ha

Harvard University



Abstract:

In this lecture, I will describe our effort to understand how the mechanical responses of single molecules contribute to important cell fate decision, first in the nucleus where DNA resides and then on the cell membrane. We are revealing unusual mechanical properties of DNA that the evolution has utilized throughout the history of life on earth. We then repurpose the double helical structure of DNA to probe how the cells sense their mechanical environments.

Biography:

Dr. Taekjip Ha is George D. Yancopoulos Professor of Pediatrics in honor Frederick W. Alt at Harvard Medical School and senior investigator of Program in Cellular and Molecular Medicine at Boston Children's Hospital. He has also been an investigator with the Howard Hughes Medical Institute since 2005. He develops and uses single molecule and single cell measurement tools to study life at high resolution. Dr. Ha received a bachelor in Physics from Seoul National University in 1990 and Physics Ph.D from University of California at Berkeley in 1996. After postdoctoral training at Stanford, he was a Physics professor at University of Illinois at Urbana-Champaign until 2015 and Bloomberg Distinguished Professor at Johns Hopkins University 2015-2023. Dr. Ha serves on Editorial Boards for Science. He is a member of the National Academy of Science and the National Academy of Medicine, and a fellow of the American Academy of Arts and Sciences. He was elected as President of the Biophysical Society in 2021.