

## Cees Dekker

*TU Delft*



Prof. Dr. Cees Dekker has a broad research program at the interface between nanotechnology and biology, ranging from single-molecule biophysics of DNA-protein interactions to the nanobiology in living bacteria. Here he will present his work on DNA translocation through solid state nanopores. His group pioneered the method of using a TEM to drill nanopores in very thin SiN membranes was developed. The subsequent detection of single DNA molecules using such pores is very similar to a Coulter counter, where objects are detected by the current blockade they cause as they traverse a narrow channel. The nanopore is mounted in a flow cell separating two compartments filled with an electrolyte DNA translocation. The work on nanopores has developed and diversified widely, from a tool in biophysics to DNA sequencing.

Dekker studied experimental physics at the University of Utrecht. In Utrecht, he also received his PhD in physics and started working as assistant professor in 1988. While holding this position, he spent two years at the IBM Research Center, Yorktown Heights, USA. Before he was appointed Antoni van Leeuwenhoek professor at Delft University of Technology in 1999, he worked as associate professor at the same university. Since 2000, he is full professor of molecular biophysics at Delft University. Currently, he also acts as department chair of the new Department of Bionanoscience, director of the Kavli Institute of Nanoscience, and scientific director of the 3TU Center of Excellence 'Bionanoapplications'. Dekker received several awards and honors including the Discover Award for Emerging Future Technologies (1999), the NWO Pionier Award (2000), the Agilent Europhysics Prize (2001), the Julius Springer Prize for Applied Physics (2002), the Spinoza award for outstanding, pioneering and inspiring scientific work (2003), the International Montefiore Award (2005), the Innovation in Nano Research Prize (2006), the Nanoscience Prize from the International Society for Nanoscale Science, Computation and Engineering (2012), and the Physica Prize of the Dutch Physical Society (2012).