

Advances in instrumentation over the last few years have established single molecule measurements as a major method in many biological laboratories. Exploiting the full power of such measurements is dependent on a good understanding of single molecule behavior and enzymology.

In this first comprehensive resource on the topic, two of the world's most distinguished single molecule scientists have put together a team of pioneers in the field to show how to both set up and interpret a single molecule experiment. Following an introduction to single molecule measurements and enzymology, the authors consider molecular motors and mechanical properties before moving on to the applications themselves. Detailed discussions of studies on protein enzymes, ribozymes and nucleic acids are also included.

This book is indispensable reading for a growing number of scientists.



*Toshio Yanagida* did his undergraduate and graduate studies in semi-conductor physics at Osaka University, Japan. He then switched to biophysics in 1970 to pursue a career in basic science. He is now professor of the Osaka University Graduate School of Frontier Biosciences, and leading projects at WPI Immunology Frontier Research Center and life science division of "Yuragi" project, Osaka University in Japan. His teams are leading the development of single-molecule detection techniques to investigate the molecular motor of contracting muscle. Professor Yanagida is a founding editor of the Journal "Small". For his scientific achievements, he has received numerous awards, among them the Japan Academy Award and the Japanese Imperial Award.



*Yoshiharu Ishii* studied physics and biophysics at the Universities of Tokyo and Nagoya, Japan. From 1983 onwards he worked at the Boston Biomedical Research Institute, USA, returning to Japan in 1992 to pursue his research career in applied biophysics. He organized research teams "Biomotron", "Single Molecule Processes", and "Soft Nano-machines" with Prof. Yanagida to develop single molecule detection techniques. He is currently a research manager in Core Research for Evolutional Science and Technology (CREST) in Japan Science and Technology agency (JST). Dr. Ishii is an editorial board member of the journal "Open Biochemistry".

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