

Nanotechnology Research Institute Personnel Profile 4

-Dr Hiroshi Tokumoto, A Pioneer Scientist in Japan SPM Development

A Principle Researcher of the Nanotechnology Research Institute (NRI) Dr Hiroshi Tokumoto is a leader expert in Scanning Probe Microscopy in Japan and in the world. Dr Tokumoto developed the first Scanning Tunnelling Microscopy (STM) in Japan and made the first STM atomic images of $2H-NbSe_2$ which was published in Japan Journal of Applied Physics 25, L621, 1986. He worked together with Seiko Instrument (SII) to develop the first commercial STM system in Japan in 1989 (see Figure 1).

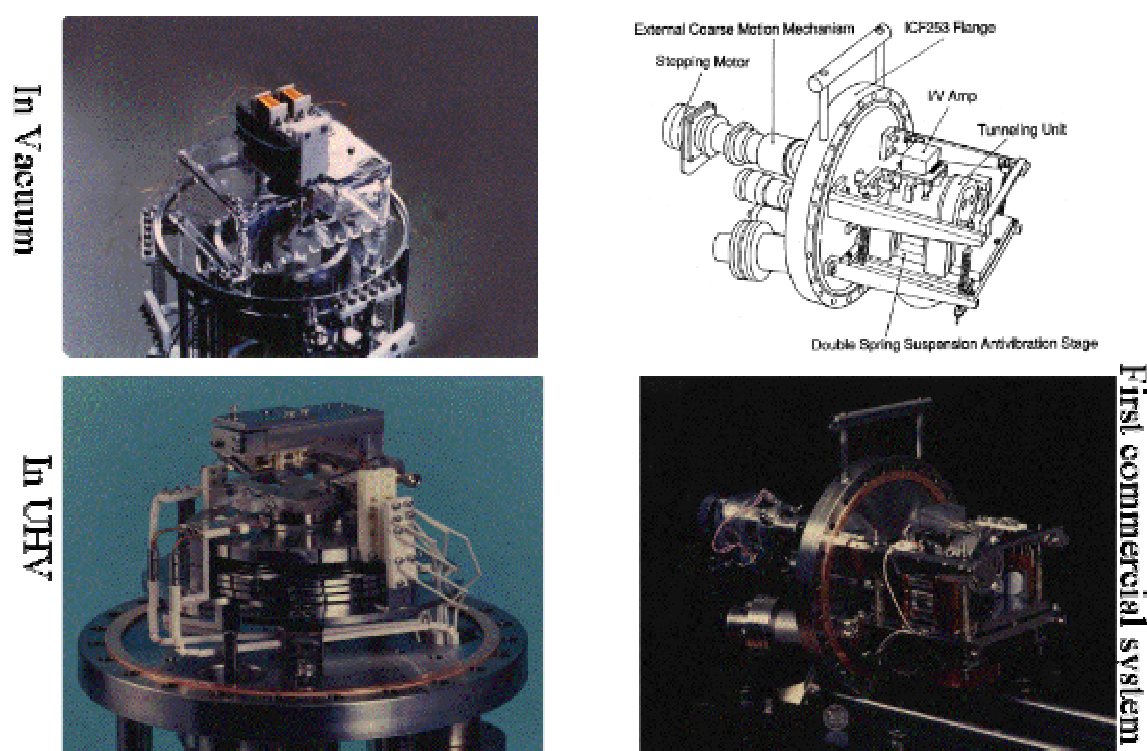


Figure 1, courtesy of Dr Hiroshi Tokumoto

Dr Tokumoto graduated from Osaka Univ. with a PhD in Physics in 1977. He then spent 15 months at Bedford College of Univ. of London as a visiting scientist. He continued his research at the Electrotechnical Laboratory (ETL) of the National Institute of Advanced Industrial Science and Technology (AIST) until 1997 when he joined the new National Institute for Advanced Interdisciplinary Research (NAIR) in AIST as a Principle Researcher. He participated in the well know JRCAT Project (Ultimate Manipulations of Atoms and Molecules) funded by the Ministry of Economy, Trade and Industry (METI) from the beginning of the project in 1992 over 10 years as a Group Leader focusing on Extreme Manipulation of Atoms and Molecules by using Scanning Mechanical Probe Method.

Since 2003, he was invited to join the Nanotechnology Research Center of Hokkaido University as full Professor working on Single Atom/Molecule Technology for Nanoscale Science and Technology.

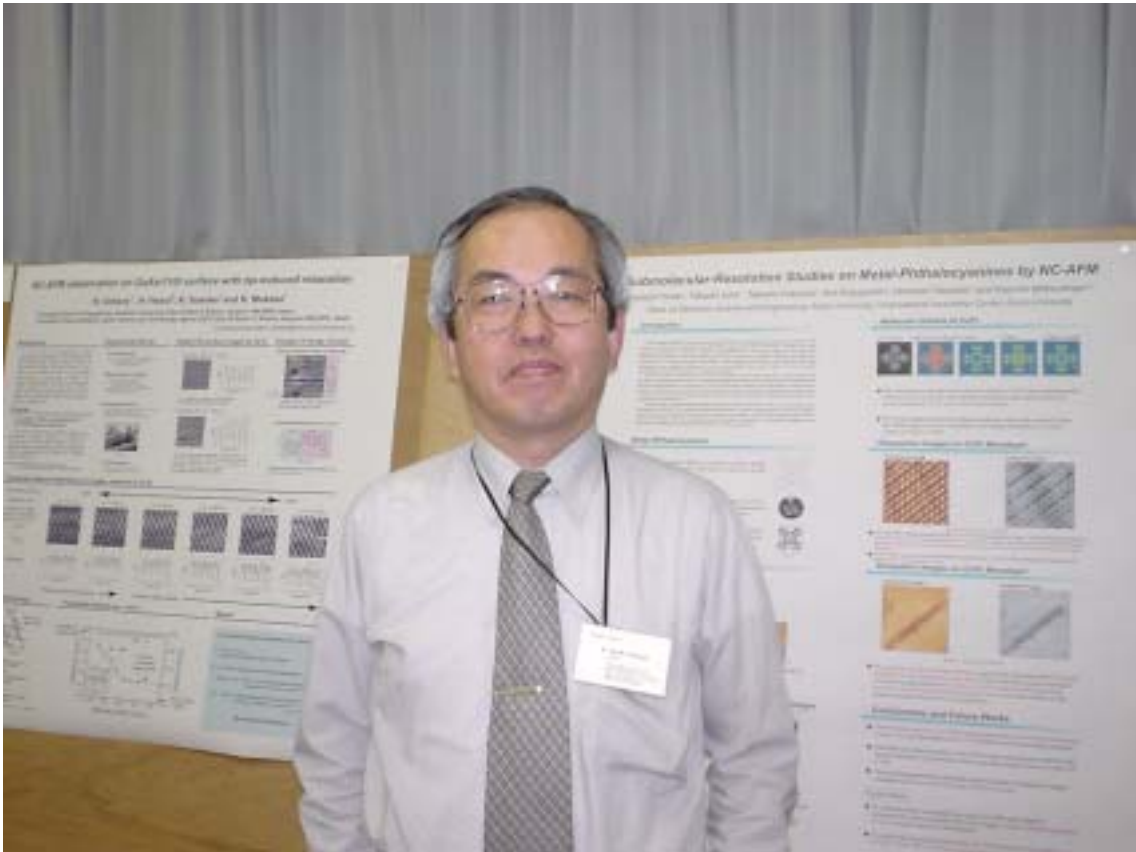
Dr Tokumoto`s expertise can be summarized as the following:

- Scanning Probe Methods (STM, AFM and related techniques)
- Light Scattering Techniques
- Ultrasonic Measurement Techniques
- Cryogenic and Ultrahigh Vacuum Techniques
- Physics on Metal, Semiconductor, Dielectrics, and so on.
- Planning of R&D and Management of Research Group
- Organizing International Scientific Meetings/Workshops/Conferences

He owns over 40 patents and published more than 220 scientific papers to various Japanese and English Journals. He has given more than 500 scientific oral talks at domestic and international conferences including invited ones. He serves as a member of American Vacuum Society (AVS), American Physical Society (APS), Materials Research Society (MRS), American Association for the Advancement of Science (AAAS), the Physical Society of Japan, the Japan Society of Applied Physics, and the Vacuum Society of Japan. He is also on the Advisory Board of Nanotechnology (IOP), Member-at-large, Nanoscale Science and Technology Division (NSTD) of AVS (1999-2001) and so on.

He received awards including ETL Research Achievement Award, Vacuum Lubrication Thin Film Research Award, Si Surface Processing Research Award.

His latest work and research is much focused Carbon Nanotubes (CNT) applications in electronic devices and SPM. With deep insight and extensive experience in Nanotechnology R& D, Dr Tokumoto has been playing a very active role in leading future research direction, coordinating national and international collaborations and network in Nanotechnology. “Nanotechnology is advancing rapidly worldwide. We must stay active in keeping in touch with the global development particularly with the top leaders. While developing new research areas using my experience, I would like to move around the world in order to have first hand information and stay in touch with the leaders” Tokumoto said.



A latest photo of Prof. Hiroshi Tokumoto

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