

# Functional Nanodevices Fabrication and Assembly based on Nanorobotic Manipulation

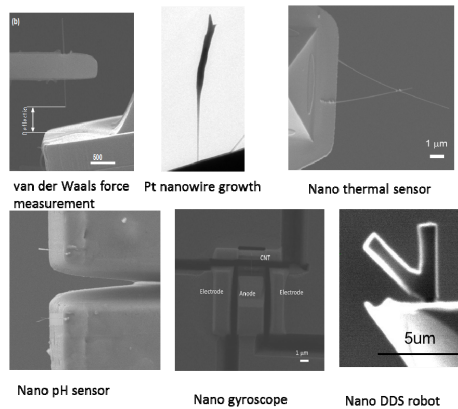
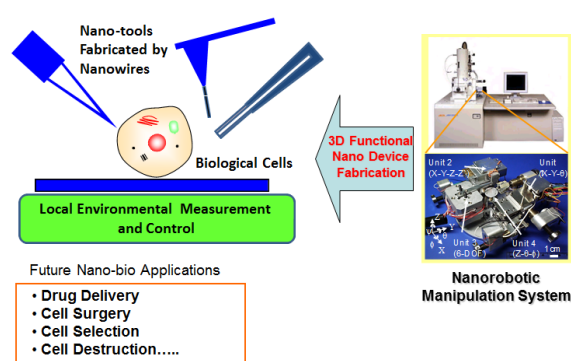


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## Abstract

Nanodevice has invested interest on its applications of biological measurement and control. In order to fabricate nanodevice, fundamental research of fabrication and assembly is necessary. Three sensors has been fabricated based on nanorobotic manipulation system. Nanoelectronics and nanoelectromechanical systems have been widely invested in recent years. Nanorobotic manipulation [1] is key technique, which characters the nanometer-scale resolution and multiple degrees of freedom (DOFs) with position and orientation control and real time observation. The nanomanipulator has been constructed both inside field emission microscope (FESEM) [1] and transmission electron microscope (TEM) [2] for assembly of nanodevices and characterization the property of nanoblocks. This talk focuses on nanorobotic manipulation based nanofabrication and nanoassembly of nanodevices and nanoparticles nanowires growth by field emission. The main purpose is to improve the nanofabrication by using the data of van der Waals force measurement and improve the metallic nanowire quality to the satisfaction of bio-chemical detecting nanosensor and develop advanced nanoelectromechanical system (NEMS) sensors.



## Biography

Zhan Yang (S'07) received the B.S. degree from the Department of Automation, Harbin University of Science and Technology, Harbin, China, and the M.S. and Dr. Eng. degrees from the Department of Micro-Nano Systems Engineering, Nagoya University, Nagoya, Japan, in 2010 and 2013. He is currently a Lecturer with Robotics and Microsystem Center, Soochow University, Suzhou, China, and Collaborative Innovation Center of Suzhou Nano Science and Technology, Soochow University, Taipei, China. His research interests include nanomanipulation, nanosensor, and nanorobotics.

## References

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- [2] Nakajima M., Arai F., Fukuda T., (2006). In situ measurement of Young's modulus of carbon nanotubes inside a TEM through a hybrid nanorobotic manipulation system. *IEEE Trans. on Nanotechnology*, 5 (3), 243.