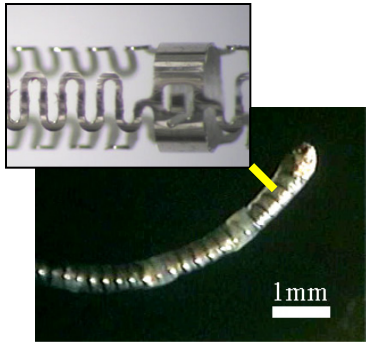
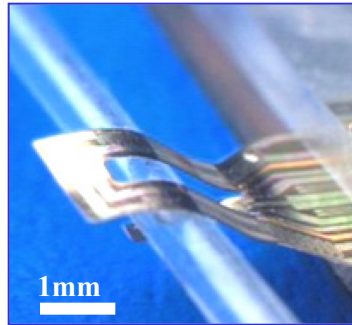


# Micro/Nano Mechanical Device and Fabrication Technologies

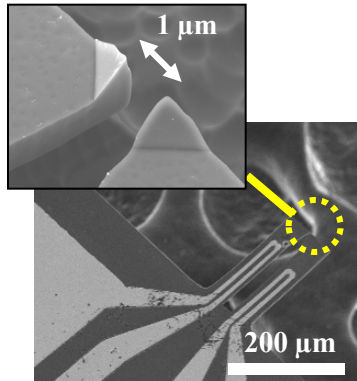
Professor Takashi Mineta



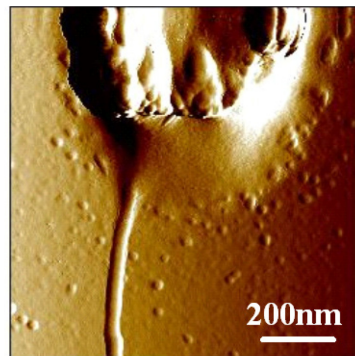
Shape memory alloy micro actuator for active catheter  
(Batch fabrication of 3D micro structure with non-planar lithography and electrochemical etching techniques)



Micro clip type blood pulsation sensor  
(shape memory alloy thick film actuator integrated with micro strain sensors and thin film heaters)



Dual nano-probe for molecular observation and in-situ mechanical operation



Trapping of bio-molecules (hyaluronic acid molecule) with Nano-electrodes

## Content:

MEMS (Micro Electro Mechanical Systems) devices such as micro mechanical sensors and actuators have been developed in my laboratory. In particular, we focus on medical devices and biological applications, for example, micro manipulators with functions of active posture control in small blood vessel, blood flow sensors, and nano-tools for bio-molecule trapping and operation. To realize these micro/nano devices, we are also studying micro/nano fabrication process technologies based on fine patterning, deposition of thin and thick films of actuator materials, and fine etching techniques.

Yamagata University Graduate School of Science and Engineering

Research Interest : MEMS, Micro sensor,

Micro actuator,

Micro/Nano fabrication process

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