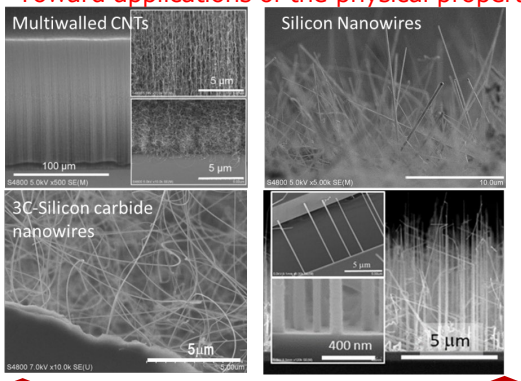
MI-1: Nano Electro Mechanical Systems Lab.

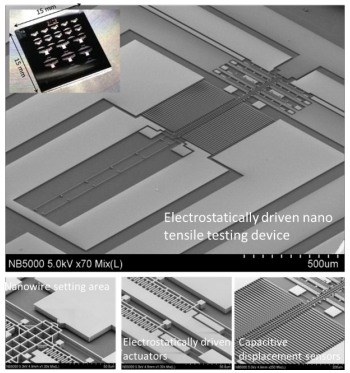
Division of Innovative Materials and Nano Engineering

Nanotechnology & science field

➢ Semiconductor nanowire crystal growth technology and evaluation of physical properties

✓Toward applications of the physical property of one-dimensional nanowires!!



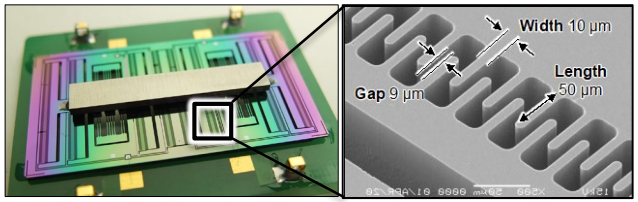


Piezoresistive sensor and thermo-electric conversion energy harvester applications

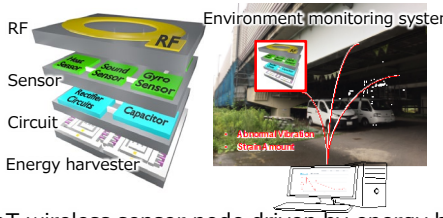
MEMS nanotensile testing device enables evaluation of nanowire properties

Energy harvesting field

➢ Energy conversion mechanism with electret MEMS technology



Electret-based vibrational energy harvester (3 cm× 2 cm)



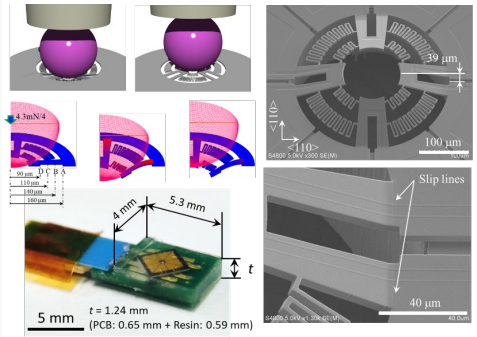
New theory development of electret-based micromachine

Solving public problems by MEMS sensors and actuators having a new function

IoT wireless sensor node driven by energy harvester

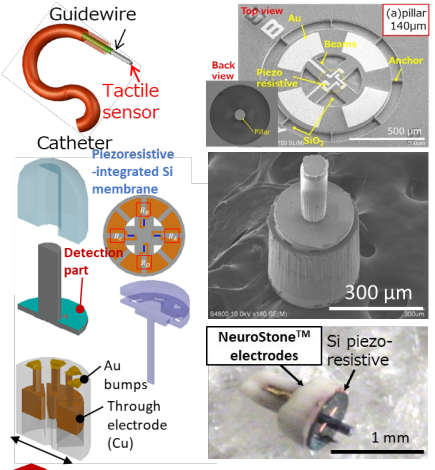
Sensor device field

➢ MEMS force sensor



Development of 3-axis force sensor by high temperature punch creep forming for application to robot hands/grippers

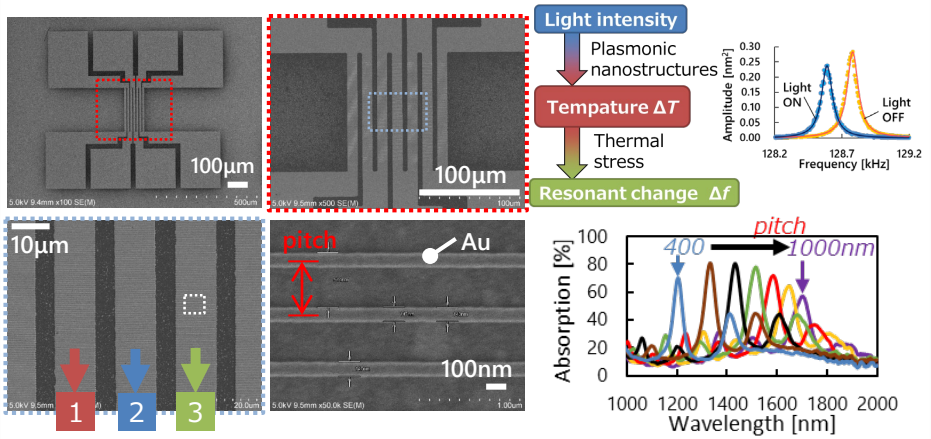
➢ Medical MEMS force sensors



Expansion of MEMS sensor applications for medical devices

➢ Wavelength-dependent infrared MEMS sensors

✓ Nanosmart highly functional devices (e.g. on-chip spectroscopic sensors) by integrating MEMS and nanomaterials/structures!!



Resonant high-sensitivity optical sensor array