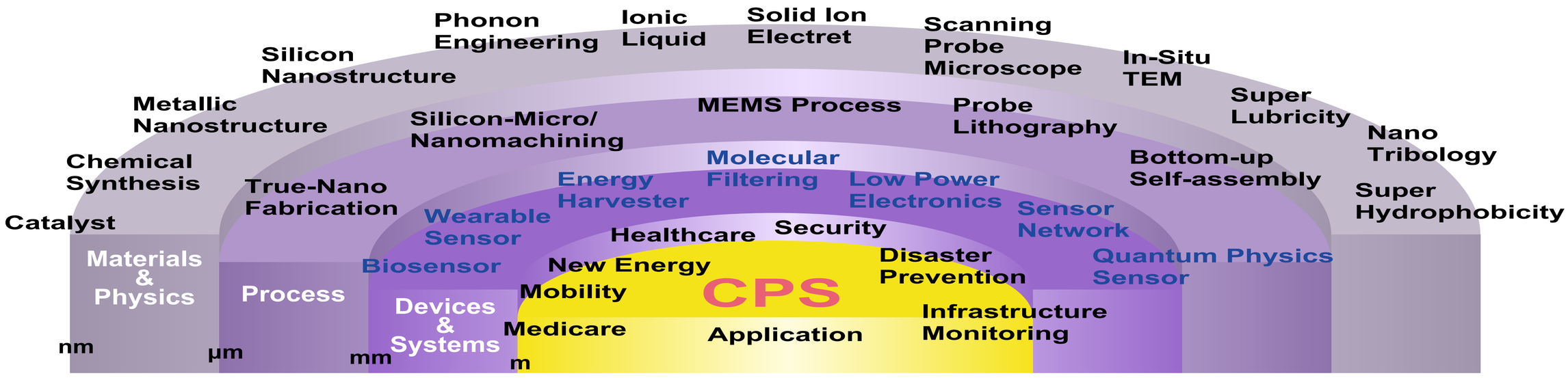
Centre for Interdisciplinary Research on Micro-Nano Methods (CIRMM)

Materials Engineering
Precision Engineering Department
Department of Advanced Interdisciplinary Studies
Department of Electrical Engineering and Information Systems

http://www.cirmm.iis.u-tokyo.ac.jp/

MEMS and True-Nano Technology for Cyber-Physical-System (CPS) Implementation



True Nano Physics
Novel devices beyond the scale of conventional principles

CPS Implementation
MEMS as edge computers and gateway to cloud of big data

Nano Fabrication
In-house Fab-Lab for cutting-edge manufacturing

We focus on exploring new methods of detection, imaging, selection and filtering of molecules and atoms, harvesting of energy from the nanometric level, control of friction, fabrication, diagnosis and even treatment. In parallel, we envisage large scale implementation of things small, such as sensors, energy harvesters, optical and diagnostic nano tools. As the name of the centre implies, we put emphasis on exploring new Methods, as opposed to improving existing techniques.

Kawakatsu Lab.

Dept.2
Ce-B02

Coupling to the nano regime

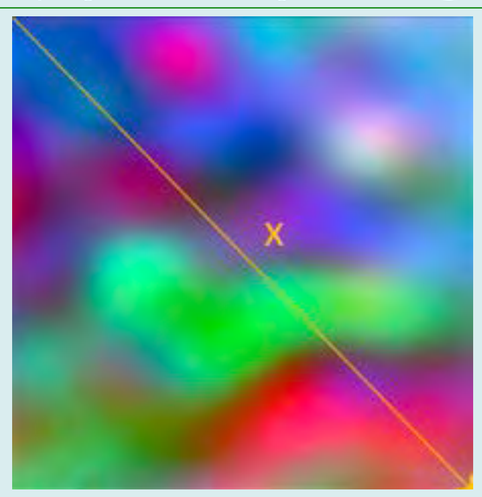
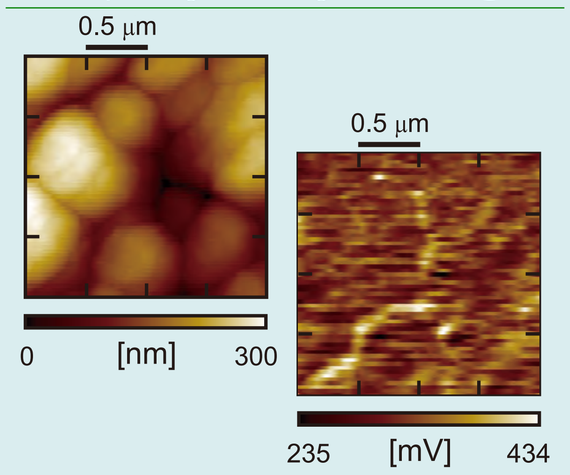


Image of silicon acquired with the Colour AFM

Takahashi Lab.

Dept.3
Ee-305

Nano-probing Technologies

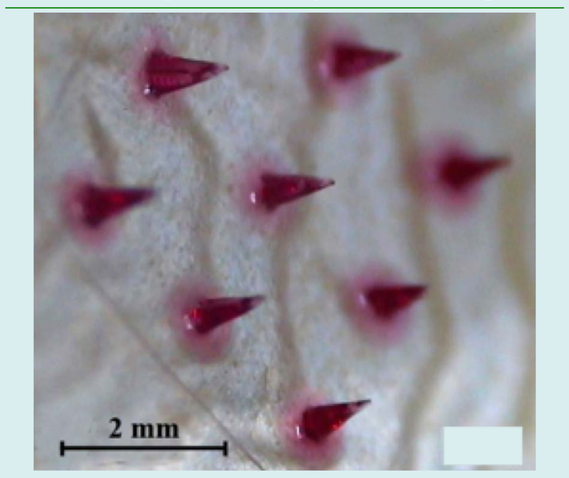


Images of topography (left) and photovoltage (right) on $Cu(In,Ga)Se_2$ solar cell

Kim Lab.

Dept.2
De-B02
Dw-304

Micro Components & Systems

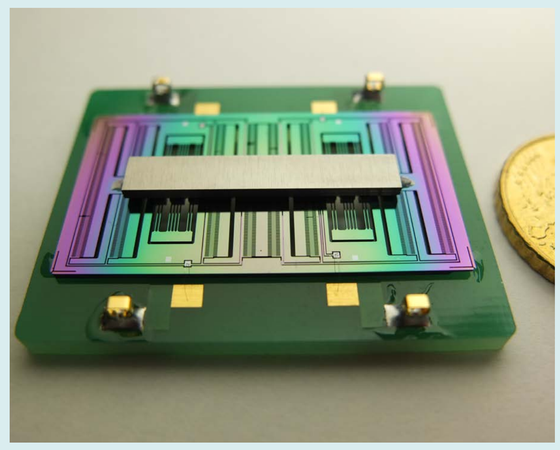


Dissoluble microneedles of Carboxymethylcellulose with red dye for transdermal drug delivery

Toshiyoshi Lab.

Dept.3/
Ee-308

MEMS/NEMS

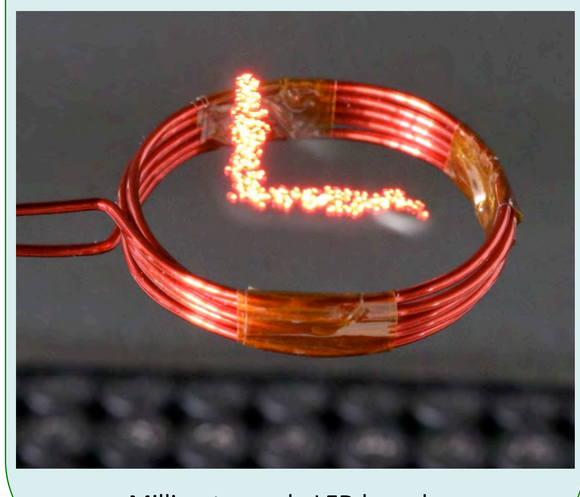


MEMS environmental vibrational energy harvester

Takamiya Lab.

Dept.3/
VDEC
Ew-206

Integrated Power Management

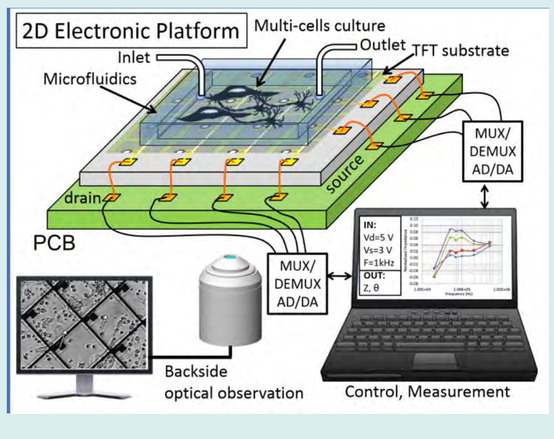


Millimeter-scale LED based on acoustic levitation for mid-air display

Tixier-Mita Lab.

Dept.3/
RCAST
Ee-302

Bio CMOS/MEMS Platforms

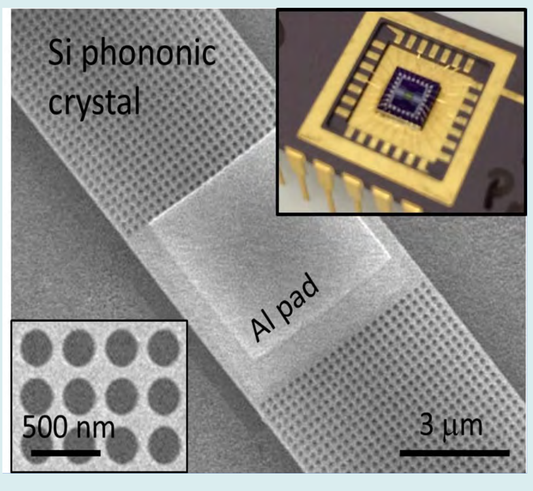


Integrated 2D electronic platform for electrical interaction and manipulation of biological cells

Nomura Lab.

Dept.3
Fe-207

Nanoscale heat transfer and thermoelectrics

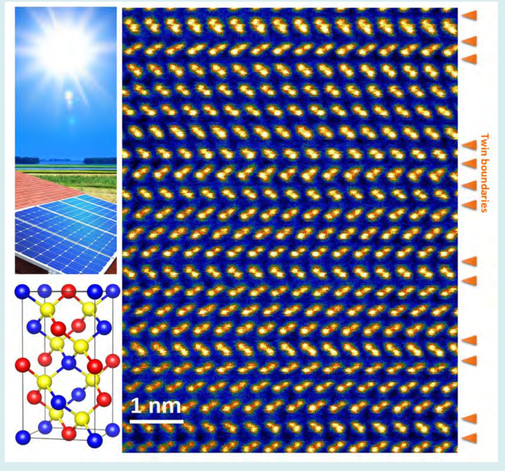


Nanostructured Si thermoelectric energy harvester

Mizoguchi Lab. affiliated member

Dept.4
Fe-312

Understanding role of atom and electron in material



Atomic resolution image of multiple-twin boundary in photovoltaic cell material