



Design & Evaluation of Materials for Bio/Medical Device

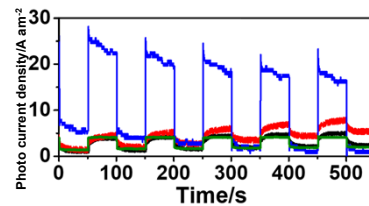
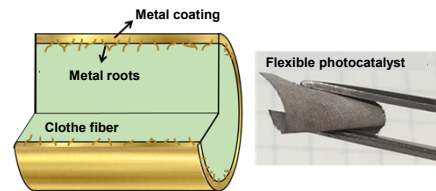
Lab. For Materials and Structure (MSL)

Lab. For Future Interdisciplinary Research for Science and Technology (FIRST)

<http://www.ames.pi.titech.ac.jp/index.html>

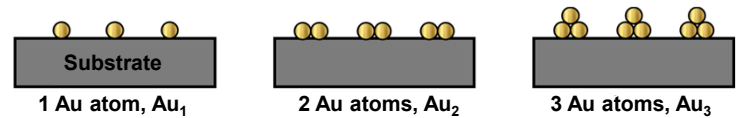
- Noble Metal Materials for Highly Sensitive and Non-Invasive Bio/Medical Device
- Semiconductor/Metal/Polymer Functional Composites for Wearable Devices
- Atom-by-Atom Electrodeposition of Noble Metals

Design of metal-based functional materials with outstanding performances, such as biocompatibility, anti-corrosion, high mechanical strength, and high catalytic activity for novel bio/medical devices. Current research topics include: (1) Au-based materials for highly sensitive and non-invasive sensors toward diagnosis of neurological diseases, (2) development of flexible semiconductor/metal/polymer functional composites for wearable medical devices, (3) atomic level manipulation of metal atoms for biochemical sensors.

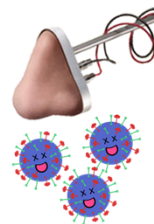


Development of flexible functional composites for medical devices

- Flexible, biocompatible and multi-functional composites
- Enhanced interaction between the functional materials



Olfactory sensor

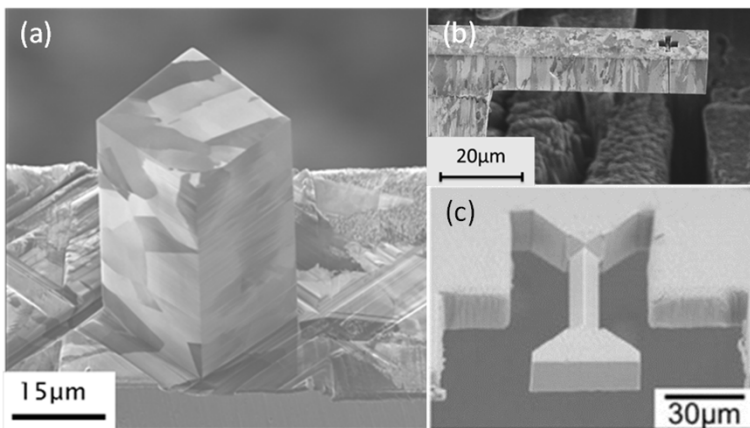


Anti-virus/bacteria fibers



Atom-by-Atom electrodeposition

- Catalyst with high activity and selectivity
- Inactivation of virus and bacteria



(a) Compression, (b) bending, (c) tensile micro-specimens

Self-designed micro-mechanical testing equipment

- Evaluating the mechanical property of micro-specimens
- Micro-compression, micro-bending and micro-tensile tests