Development of novel nano-probing technologies and nano-scale characterization of nano-materials for future device application

We aim at investigating electronic and optical properties in various nano-materials by means of nano-probe methods such as scanning tunneling microscopy (STM), atomic force microscopy (AFM), and related ones.

- **Characterization of Solar Cell Materials**
  - Photovoltaic properties and minority carrier dynamics
  - Photothermal spectroscopy by AFM

- **Characterization of Carbon Nanotube FETs**
  - Current detection by magnetic force microscopy (MFM)

- **Development of Novel SPM Methods**
  - Fast imaging in AFM
  - Novel operation methods for high performance SPMs

- **Physics in Quantum Nanostructure**
  - Observation of physical phenomena in low-dimensional semiconductors

**Multi-functional SPM equipments:**
(a) air type, (b)/(c) high vacuum and variable temperature type

**Tunable Ti:Al₂O₃ laser with solid state green laser**

**Variable temperature SPM in ultra-high vacuum**