Hirakawa-Nomura Group [Physics and Device Applications of **Quantum Nanostructures**]

Department of Informatics and Electronics

Center for International Research on MicroNano Mechatronics

http://thz.iis.u-tokyo.ac.jp

Quantum Semiconductor Electronics/Integrated Quantum Electronics

Department of Electronic Engineering and Information Systems

Quantum nanophysics and its device applications

Various intriguing physics shows up in quantum nanostructures owing to size quantization and electron-electron interaction effects. We investigate such novel physics in quantum nanostructures and look into their device applications.

- Carrier dynamics and device applications of quantum nanostructures in the THz range Physics and applications of single quantum dot transistors
- Nanoscience and nanotechnologies toward novel single molecular devices
- Physics and applications of electronics-photonics-mechanics integrated quantum systems







Physics and applications of single quantum dot transistors



ò -20 -10 10 20 _{so} (mV)

Crystal growth of quantum nanostructures by molecular beam epitaxy



Concept of electronics-photonics-mechanics integrated quantum systems

