Tohoku University, Institute of Fluid Science · Innovative Energy Research Center, Advanced Institute for Materials Research*

Green Nanotechnology Research Labs. Samukawa Laboratory

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Core Technology

Research subjects



Securing safe and cheap energy and using it effectively is a serious problem for modern society. As a solution to this, we are performing research on innovative green nanodevices with the aim of making Japan a major energy-technology country. At the Samukawa Laboratory, we are developing power generating devices (such as quantum dot solar cells, thermoelectric device), storage devices (highly efficient storage batteries using nanomaterials), low-power-consumption devices (quantum dot lasers, Ge transistors, controlled phonon-field transistors, etc.), and nano-energy systems that use these devices. To manufacture these nanodevices, it is necessary to be able to do so precisely without damaging the nanostructures and to derive the intrinsic characteristics of the materials and quantum nanostructures. For the first time, such devices are made possible through the mastery of unique intelligent nano-processes such as our laboratory's base technology—a super-low-damage plasma beam process—and ultimate processing utilizing biotechnology.

地下鉄東西線 Please contact the Samukawa Laboratory if you would like more details or are interested in our research content or laboratory life. Building 2, Institute of Fluid Science, Katahira Campus, Tohoku University A Room 511, 5th floor (Professor room) Rooms 510, 512 on 5th floor, 414 on 4th floor, and 209 on 2nd floor (Assistant Professor, Student rooms) Institute of Fluid Science A Bldg. 2 (C10), 5th floor Contact TEL&FAX 022-217-5240 (Prof. Samukawa) 022-217-5318 (Asst. Prof. Toko) EF G