

Name of Device/System		Brief Description	Key Person
Heliotron J	High-temperature plasma experimental device of the helical-axis heliotron type	A leading experimental machine to study the nuclear fusion plasma confinement in the helical-axis heliotron magnetic field configuration: Major radius of the main vacuum chamber: 1.2 m Minor radius of helical coil winding: 0.22 m Average plasma minor radius: 0.15-0.2 m Helical coil winding: pole number: 1, toroidal pitch number: 4 Nominal magnetic field strength: 1.5 T.	Hiroyuki OKADA
	Electron Cyclotron Heating (ECH) System	Plasma production and electron heating system based on electron cyclotron resonance, One unit of Gyrotron oscillator: 70GHz, 500KW, 0.2s Polarization Control System Wave-Launching System	Kazunobu NAGASAKI
	Neutral Beam Injection (NBI) Heating System	This device injects high-energy hydrogen neutral beam into hot plasmas and heats the plasma. Acceleration voltage: 30 kV Acceleration current: 50 A Minimum beam divergence angle: 1.2 degree Proton ratio: 85% Pulse width: 0.2 s Neutralization efficiency: 60%	Shinji Kobayashi
	ICRF Heating System	Heating system for ions and electrons in a plasma through waves in ion cyclotron range of frequencies (ICRF) are generated and injected into plasma for plasma heating. Range of Frequency: 17.8 MHz - 53.4 MHz, Max. Power: 3MW, Pulse Width: 0.2 s	Hiroyuki OKADA
	Diagnostic System for Heliotron J	A Family of Diagnostic Devices for Heliotron J Plasma Experiments including Thomson Scattering Systems, A Charge Exchange Recombination, Spectroscopy System, ECE Radiometers, Spectrometers (Visible, VUV), Soft X-ray Detector Arrays, Hard X-ray Detectors, A Charge-Exchange Neutral Particle Energy Analyzer, A Beam Emission Spectrometer System, Interferometers, Magnetic Probes, Langmuir Probes, A High Speed TV camera System, A Residual Gas Analyzer, A Data Acquisition System, etc.	Takashi MINAMI, Kazunobu NAGASAKI, Hiroyuki OKADA
Dual-Beam Facility for Energy Science and Technology (DuET)		Dual-Beam electrostatic accelerators, accelerators device ade by HVEE-Tandatron (model 4177MC+) and Ion source made by HVEE (model358) for study of interactions of accelerated ion beams of MeV-class and solid materials Maxium accelerating voltage: 1.7MV Maxium accelerating current: 40 mA	Akihiko KIMURA
NMR machine (JEOL JNM-ECA600,600MHz)		Analysis of molecular structure in solution Observable nuclei: 1H, 2H, 13C, 15N and 19F Probe: inner coil for hetero nucleus and outer coil for proton nucleus	Masato KATAHIRA
Two NMR machines (Bruker Avance III and DRX600, 600 MHz)		Analysis of chemical structure, three-dimensional structure, dynamics and interaction in solution as to biomass and biomolecules Observable nuclei: 1H, 2H, 13C and 15N Probe: TCI, highly sensitive cryogenic probe for 1H and 13C nuclei	Masato KATAHIRA
High performance liquid chromatography system (Tosoh Bioscience HPLC)		Chromatographical analysis and purification of components in liquid sample solutions Dual pumping system, Multi-wavelength detector, Fraction Collector	Takashi MORII
Electrochemical Analyzer (BAS, BAS100B/W)		Electrochemical analysis/measurement for liquid samples Range of sensitivity: 100 nAV-100 μAV AC Impedance Module, Rotating Disk Electrode	Takashi MORII
Electron Linac for Free Electron Laser (Nissin-Denki, NKM-150K,NKM-250K)★		Electron accelerator to generate MIR wavelegh region Free Electron Laser. Electron beams can also be available to irradiate samples. High pulse power Radio Frequency amplifire Thermionic cathode RF gun (AE T, GP-500) Electron beam:Maximum acceleration energy of 40MeV, Maxium beam power of 41.2W in average. MIR-Laser:3.6-23μm, Pulse energy 1-30mJ(depend on wavelength)	Hideaki OHGAKI
High temperature/pressure warter loop for SSRT		Stress corrosion craking (SCC) test in the water relevant to LWR water Max. temp.: 320°C, Max. pressure: 8MPa, DO/DH control, conductivity and corrosion potential; Test of SSRT and CBB	Akihiko KIMURA
Tensile test device for mini size specimen		Tensile test; small punch test; bending test Room temperature	Akihiko KIMURA
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Discharge-type Fusion Neutron Generator		Nuclear fusion device for neutron irradiation Neutron energy: 2.45MeV (monoenergy) Neutron yield: 10 n/sec (CW) Distance between target and generator center: >20cm Continuous irradiation duration: < 8hrs/day	Kai MASUDA
Ion Mill (Model600 TMP)		Thin specimen preparation for electron microscope observation Maxium accelerating voltage/current: 101KV/2mA; alterable gas; simultaneous working for 2 specimen; specimen size 3mm; Turbo pumped model	Akihiko KIMURA
Dual-FIB (JIB-4500)		Specimen preparation of micron thickness for electron microscope observation equipped with omniprobe	Akihiko KIMURA
Low energy ion mill		Specimen preparation for TEM observation 100-2,000eV, Ion current more than 50μA; 2.5μm/h@500eV, 28μm/h@2,000eV	Akihiko KIMURA
Electroporator		Gene transfer for cell Output Waveform: Exponential decay or Square wave Output Voltage: 10-500V (Low Voltage Circuit, CE module) 200-3000V (High Voltage Circuit, PC module)	Takashi MORII
Incubator shaker (Innova 4230)		Incubator for the shaking culture of microorganism Swing speed : 25-400rpm, Temperature range : 4-80°C	Takashi MORII
Ultrasonic disintegrator (ASTROSON model XL2020)		For ultrasonic disintegration of cell structure Maximum Output: 550W, Frequency: 19.8kHz	Takashi MORII
Vacuum Freeze Dryer (FZ-12SF)		For vacuum freeze drying for frozen samples 12 Port Drying Chamber	Takashi MORII
Laser flash thermal diffusivity/conductivity measurement system (TC-7000)		Thermal diffusivity, specific heat and thermal conductivity measurement by laser flash method Temp.: RT-1500°C, Laser output : 6J/Pulse~, Environment: vacuum, Ar	Tatsuya HINOKI
Photoluminescence Measurement system		Measurement of PL from functional materials Laser 325nm (10mW), 442nm(50mW), Detector : electric cooled CCD	Hideaki OHGAKI
Transmission electron microscope (JEM-20X JEX-20)		Microstructural observation Maxium accelerating voltage 200KV; Resolution 0.25nm (particles) 1.14nm (latticess); Available for high title angle	Akihiko KIMURA

Scanning Electron Microscope with Energy Dispersive X-ray Microanalysis (JSM-6500F EX-23000BU)	Observation of SEM images Resolution:3.0nm, X-ray analysis from Na to U by Si(Li) X-ray detector	Kazunari MATSUDA
Detected device of surface morphology (Micromap128)	Micro-observation of solid surface morphology Non-contact type; Reflectivity higher than 1%; Resolution in height direction:1µm	Akihiko KIMURA
DNA Sequencer(3130 Genetic Analyzer)	For Determination of the precise sequence of nucleotides in a sample of DNA 4-capillary, 4-color fluorescent detection, maximum sample number: 96	Takashi MORII
Fluorescence microscope	An optical microscope that uses fluorescence and phosphorescence instead of, or in addition to, reflection and absorption to study properties of organic or inorganic substances. Fluorescent image, Differential interference contrast image, Eyepiece lens :X10 Objective lens: X10, 20, 40, 100	Takashi MORII
Nuclear Magnetic Resonance(NMR) (JNM-ECP300)	To exploit the magnetic properties of certain atomic nuclei Resonant frequency : 300MHz, Magnetic field standards : 7.04 T, Tunable probe, CP/MAS(Cross Polarization / Magic Angle Spinning) is available, Measurable Nuclear type : 1H, 13C, 31P	Takashi MORII
Fluorescence Spectrophotometer (F-4500)	Achieves wavelength scanning with sensitivity and high-speed Wavelength range : 200-730 nm. Fluorescence anisotropy measurement is available.	Takashi MORII
Liquid scintillation counter (Beckman Coulter LS 6500 MULTI-PURPOSE SCINTILLATION COUNTER)	For measuring radiation from beta-emitting radioactive isotopes Max sample number : 336, Measurement of radioactivity of doubly labelled compound CPM (counts per minute), DPM (disintegrations per minute)	Takashi MORII
Scanning Probe Microscope (Digital Instruments NANOSCOPE IIIa)	Scanning probe microscope which able to measure surface morphology and to probe local characterization such as force curve and surface potential. STM and AFM measurements are available in the environment in air and liquid.	Hiroshi SAKAGUCHI
Transmission electron microscope (JEM-2200FS)	Microstructural observation Maximum accelerating voltage 200KV; Resolution 0.23nm (particles) 0.1 nm (lattices); Available for high resolution	Akihiko KIMURA
Scanning electron microscope available in coarse vacuum condition (JSM-5600LV)	Observation of the reflected electron image in coarse vacuum condition Resolution: 3.5nm in high vacuum condition (30kV, WD6mm, secondary electron image) 5.0nm in low vacuum condition (30KV, WD8mm, reflected electron image) Vacuum: 10-270Pa	Akihiko KIMURA
Field Emission Scanning Electron Microscopy (FE-SEM)(ULTRA55)	Observation of material surface and fracture surface, the corresponding chemical analysis, crystal orientation and measuring residual strain Accelerated voltage 30KV; Hypersensitivity; Secondary electron detector; SDD type EDX; Equipping with EBSP	Akihiko KIMURA
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Field Emission Auger Microprobe(FE-AES) (JAMP-9500F)	Observation of material surface and interface, Chemical analysis of the fracture surface 3nm SEI resolution; 8nm probe diameter for Auger analysis; Equipping with fracture device	Akihiko KIMURA
Probe Electron Probe Microanalyzer (EPMA)	Composition analysis of the oxidation surface Electronic emitter; Field emission type electron gun; Secondary electron dissociation energy; Probe diameter: ~3nm (30KV), ~40nm (10KV; 1×10-8A), ~100nm (10KV;1×10-7A) ; Accelerating voltage 1kV~30kV	Akihiko KIMURA
X-Ray Diffraction Device (XRD) (RINT-TTR III)	Analysis of crystall structure, residual strain and grain size 200mA, 50kV, Co, Cu rotating target, High temperature measurement in vacuum, Pole figure, low angle diffraction, small detected area	Akihiko KIMURA
Electron beam heating device (JEBG-303UA)	Rapid heating by electron beam for vapor deposition and thermal shock Output:30kW, Deflection angle:270°, Scanning speed: High	Tatsuya HINOKI
Streak Camera(C6138s)	An instrument for measuring the variation in a pulse of light's intensity with time Resolution: 200 fs Spectral range:400-850nm	Kai MASUDA
Ultracentrifuge with temperature control (XL-80K)	Adaptable solutions for separation, pelleting, harvesting & elutriation. Max Speed : 80,000rpm, 2 rotors were available (type 70.1, type 50.2)	Takashi MORII
High Speed Centrifuge with temperature control (Avanti HP-25)	Adaptable solutions for separation, pelleting, harvesting & elutriation. Max Speed : 25,000rpm, 3 rotors were available (JLA-10, JA-20, JA-21)	Takashi MORII
chromatochamber (ALS-720F)	Cold storage equipment (4°C) Temperature range 0-7°C Strage 1000 L	Takashi MORII
Clean bench (clean Air Equipment) (S-1300PRV)	Ventilated laboratory workspace for safely working with materials contaminated with (or potentially contaminated with) pathogens requiring a defined biosafety level. Single-Faced Type P-series. Air circulation type The air in working space by treatment with HEPA filter will rotate. HEPA filter last for a long time. W1300xD750xH1810mm	Takashi MORII
Freezers (ULT-1386-3)	Cold storage equipment (-80°C) Temperature range -65~-86°C, Strage 379 L	Takashi MORII

★Cost a fee

as of 14,Dec.2018