

Technological Directory - Graduate School and Faculty of Engineering (2020)

Department of Electrical and Electronic Systems Engineering

Discipline	Field	Expertise	Keyword 1	Keyword 2	Keyword 3	Open to consultations on	Lab	Researcher	Related researchers
Engineering	Materials engineering	Semiconductor physics and devices	Terahertz generation	Nanofabrication	Oxide thin-film transistors	Compound semiconductor nanoscale processing technologies Oxide semiconductor application technologies	Nanodevice Lab	Shigehiko SASA, Professor	Toshihiko MAEMOTO, Professor
Engineering	Informatics	Optimization/soft computing	Combinatorial optimization	Meta-heuristics	Soft computing	Computer-based methods to obtain a solution near to the optimal one in complex problems where the optimal solution cannot be easily obtained	Systems Optimization Lab	Yuji SHIGEHIRO, Professor	Wataru KASE, Professor Katsuyoshi TSUJITA, Professor Takashi TAKUMA, Associate Professor
Engineering	Electrical and electronic engineering	Electric power engineering/ electric equipment engineering	Linear motor	Magnetic levitation	Power Electronics	Linear motor applications, magnetic levitation and other conveyance systems, inverters, matrix converter and other power electronics applications, motor control	Mechatronics Lab	Toshimitsu MORIZANE, Professor	Hideki OMORI, Professor Hidehito Matayoshi, Assistant Professor
Engineering	Electrical and electronic engineering	Electric power engineering/ electric equipment engineering	Power electronics	Power semiconductor applications	High frequency inverter	Power semiconductor utilization technology, inverter applications, induction heating, wireless power transfer, home appliance, smart house	Power Electronics Lab	Hideki OMORI, Professor	Toshimitsu MORIZANE, Professor Hidehito Matayoshi, Assistant Professor
Engineering	Electrical and electronic engineering	Electron/electric materials and semiconductor devices	Oxide thin-film transistors and its applications	Energy harvesting technology	Nanofabrication and new functional nanomaterials	Electron devices and oxide semiconductor devices, sensor devices, flexible devices and printed electronics	New Functional Materials and Devices Lab	Toshihiko MAEMOTO, Professor	Shigehiko SASA, Professor Masatoshi KOYAMA, Assistant Professor
Engineering	Electrical and electronic engineering	Electronic devices and electronic equipment	Liquid crystal display	Electrical and electronic materials	Organic electronics	Liquid crystal displays in general (display technology, liquid crystal materials, alignment films, optical design)	Liquid Crystal Lab	Shoichi ISHIHARA, Professor	
Engineering	Informatics	Optimization/soft computing	Combinatorial optimization	Meta-heuristics	Soft computing	Computer-based methods to obtain a solution near to the optimal one in complex problems where the optimal solution cannot be easily obtained	Systems Optimization Lab	Yuji SHIGEHIRO, Professor	Wataru KASE, Professor Takashi TAKUMA, Associate Professor Katsuyoshi TSUJITA, Professor
General	Informatics	Perception information processing/dexterous robotics	System dynamics	Biologically inspired robotics	Human-machine systems	Dynamics of multiple degree of freedom systems, human-machine interaction, robotic prototype test system for spacecraft	System Dynamics Lab	Katsuyoshi TSUJITA, Professor	Wataru KASE, Professor Yuji SHIGEHIRO, Professor Takashi TAKUMA, Associate Professor

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Engineering	Electrical and electronic engineering	Electronic devices and electronic equipment	Electronic devices and integrated circuits	CMOS analog integrated circuits design	Energy harvesting	Design and Analysis of analog front-end circuits, particularly PLL circuits, oscillators and high-speed interface circuits.	High-frequency Circuit Design Lab	Tsutomu YOSHIMURA, Professor	Takao KIHARA, Associate Professor
Engineering	Electrical and electronic engineering	Electric power engineering/electric equipment engineering	Electric discharge engineering	Plasma engineering	Environmental improvements	Environmental improvement technology using discharge plasma	Pulsed Power Engineering Lab	Tomoaki MIICHI, Associate Professor	Akiyoshi NAGATA, Professor Keiichiro YOSHIDA, Associate Professor Masako SHINDO, Associate Professor
Engineering	Mechanical engineering	Intelligent mechanics and mechanical systems	Robotics	Biomechanics	Human-machine systems	Design and development of biologically inspired robot contained by artificial muscles and animal-like spine.	Robotics Lab	Takashi TAKUMA, Associate Professor	Yuji SHIGEHICO, Professor Katsuyoshi TSUJITA, Professor
New multidisciplinary field	Environmental science	Environmental technology and environmental materials	Environmental maintenance technology	Environmental burden reduction technology	Energy reduction technology	<ul style="list-style-type: none"> · Particle collection, decomposition and manipulation using electrostatic and plasma technologies · Ionic wind applications 	Plasma and Environmental Engineering Lab	Keiichiro YOSHIDA, Associate Professor	Akiyoshi NAGATA, Professor Tomoaki MIICHI, Associate Professor Masako SHINDO, Assistant Professor
Engineering	Electrical and electronic engineering	Electronic devices and electronic equipment	CMOS analog/digital integrated circuits design	Radio frequency integrated circuits	Wireless communication devices	Design and development of CMOS integrated circuits and RF transceivers	Integrated Circuits Lab	Takao KIHARA, Associate Professor	Tsutomu YOSHIMURA, Professor
Engineering	Electrical and electronic engineering	Plasma processing for bio-materials and electronic materials	Plasma agriculture	Air flow control using plasma	Plasma technology near surface	Plasma sterilization of crops and medical instruments Growth enhancement of plants by irradiating plasma Air flow control using plasma Surface engineering using plasma	Plasma Science and Engineering Lab	Masako SHINDO, Associate Professor	Akiyoshi NAGATA, Professor Tomoaki MIICHI, Associate Professor Keiichiro YOSHIDA, Associate Professor
Engineering	Electrical and electronic engineering	Semiconductor device processing	Compound semiconductor materials and devices	Semiconductor fabrication process	Nanodevice	Compound semiconductor device processing technologies/ Oxide and nitride semiconductor based devices	Advanced Devices and Process Engineering Lab	Masatoshi KOYAMA, Assistant Professor	Shigehiko SASA, Professor Toshihiko MAEMOTO, Professor
Engineering	Electrical and electronic engineering	Electric power engineering / electric equipment engineering	Wind generators	Photovoltaic systems	Smart grids	Control of smart grids, wind generators and photovoltaic systems	Power Control Lab	Hidehito MATAYOSHI, Assistant Professor	Hideki OMORI, Professor Toshimitsu MORIZANE, Professor