Division of Electrical Engineering and Computer Science	Research field	Radio Science and Engineering	Lab. ID EC09
Laboratory web site	http://reg.w3.kanazawa-u.ac.jp/		

Research subjects

Our laboratory has two main research topics related with electromagnetic waves.
(1) Study on electromagnetic environments in space and on the Earth:
One of our research targets is plasma waves in space. We are studying the plasma waves observed by scientific satellites and using computer simulation. Our laboratory is developing electromagnetic sensors to be installed onboard scientific satellites. We are planning to develop a nano (cube) satellite for plasma wave observations.
(2) Engineering application of electromagnetic measurements:
Another research topic is development of a new measurement technique related with EMC problems. Especially, visualization of electromagnetic waves and localization of electromagnetic source are being actively studied.

Master/Doctor course: Education policy, curriculum, typical activity in the laboratory

Students sdudy their research subjects with detailed advices from a supervisor.
A seminar will be held every week where students report on the progress of their researches.
The M1 students play a central role in the various events and activities in our laboratory.

Daily life in the laboratory, etc.

Main experiment facilities: magnetic shielding room and radio anechoic chamber
Experiment equipments: PCB milling system, 3D printer, and electromagnetic wave simulator software
Some students can file patent application.

Message or comments by the laboratory faculty staffs

Professors are willing to offer advices about research topics and others. Our laboratory collaborates with domestic (Kyoto University, JAXA etc.) and international (USA: NASA, The University of Iowa, France: LPP etc.) researchers and companies. Most students completing master course get a job at ICT companies and manufacturers.
Please see a portrait in Division of Mathematical and Physical Sciences for Arimoto-sensei's works.

Recent Master theses in these 3 years (+ more if appropriate)

year.month	Thesis title (including English translation of Japanese thesis title)
2021.3	Spatio-temporal characteristics of flash auroras extracting by Convolutional Neural Network
2021.3	Study on the adaptive filtering systems of natural electromagnetic waves and application for estimating wave-particle interaction regions
2021.3	Development of mixed-reality visualization system for electromagnetic noise sources
2021.3	Construction of onboard communication system for Kanazawa-SAT3 microsatellite
2021.3	Study on attitude control by reaction wheels and a star tracker for Kanazawa-SAT3 microsatellite
2020.3	Development of organic electromagnetic wave absorbers using rice husk and charcoal composite
2020.3	Basic study on measurement of electric and magnetic fields by metasurface
2020.3	An Absorber Design for Efficient Energy Harvesting from UHF Radio Waves
2020.3	Study on attitude control by magnetic torquer for Kanazawa-SAT3 microsatellite
2020.3	Construction of ground station for Kanazawa-SAT3 microsatellite

Recent Doctoral theses in these 3 years (+ more if appropriate)

year.month	Thesis title (including English translation of Japanese thesis title)
2021.3	Spatio-temporal analysis on the wave-particle interaction regions by the ground-based remote sensing technology of pulsating aurora
2021.3	Study on miniaturization of search coil magnetometer for probing space plasma waves using ASIC technology

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