Division of Mathematical and Physical Sciences	Research field	Nonlinear Physics	Lab. ID MP13
Laboratory web site	http://nlab.w3.kanazawa-u.ac.jp/		

Research subjects

We currently study nonlinear phenomena: (1) Nonlinear Energy Localization in Lattices, (2) Pattern formations in non-neutral Electron beams, and (3) Development of Terahertz Wave sources, by both experiments and simulations. (1) Lattice systems for localization studies are micro-mechanical systems, circuit lattices, and natural crystals. (2) Themes related to electron beams span from fundamental study of vortex to an application study such as compression of electron beams. (3) Terahertz projects cover generations and applications combined with lasers and spectrometers.

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

Students will be involved in several projects and later they will choose one of them as a final theme. They will be requested to read papers related to projects, plan experiments and present a summary at a seminar to lead him/herself to give a talk at Physical Meetings. Presenters at the seminar have to be good at plain explanations, because of variety of projects classified into different areas in Nonlinear physics, and because wide range of knowledge is required to understand all projects. We share problems by all members and make students to have wide perspective of fields.

Daily life in the laboratory, etc.

Coming every day, performing experiments and joining meetings are routine works. Sometimes students stay in the laboratory and spend their time freely. Sometimes we are busy to perform outreach activities such as Science Laboratory (undergraduate activity), University Open Campus, one day science class for high school students called Science Plaza, or High-School-&-University joint activity. Students may be asked to help and join these short term activities. Students involved to Terahertz projects may visit High Energy Acceleration Facility about twice a year.

Message or comments by the laboratory faculty staffs

Graduate students will find themselves at a boundary of known and unknown regions in their study fields. Precise recipe to explore the unknown region may be given from their supervisor(s), however, it is better to have a power to push projects forward by their own ability. Anticipating next things at all time, and paying attention to development of projects will train students to have such abilities. Also communicating with supervisors well and presenting his/her ideas or thoughts to others are required to set up a leadership for moving projects forward.

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