Division of Electrical Engineering and Computer Science	Research field	Basic Mathematical Science	Lab. ID EC31

Laboratory web site	

Research subjects

We study structured population models describing the change of biological populations. Especially we will focus on size-structured population models. Size is recognized as an important parameter for the populations such as plants, fishes and plankton etc. As mathematical models, we investigate the existence and uniqueness of solutions, smoothing properties of soluitons, asymptotic behavior of solutions, the existence of steady states and their stability properties. As applications, we consider optimal control problems which maximize the profit by harvesting under the change of population, and also we study visualization of the change of population by controlling mortality or reproduction.

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

Educational policy for master course: After learning the basic mathematical theory on population dynamics, students will be given new problems to be solved. The curriculum for master course: To know similarities and differences between age-structured population models and size-structured ones, the students read some textbooks on age-structured population models first, and then read some papers on size-structured population models. After that, the students will be given some new problems to be considered. Educational policy for doctor course: The students are supposed to have ability to find new problems and solve them by themselves. The curriculum for doctor course: The students will read some papers on population dynamics and discuss some problems and solve them.

Daily life in the laboratory, etc.

There is no master/doctor course student at this moment.

Message or comments by the laboratory faculty staffs

Those students who are interested in mathematical theory and applications are welcome.

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

year.month	Thesis title (including English translation of Japanese thesis title)

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

year.month	Thesis title (including English translation of Japanese thesis title)

Laboratory mail address	Nobuyuki Kato <nkato *at* se.kanazawa-u.ac.jp>