

| | | | |
|---|--|--|-----------------|
| Division of Electrical Engineering and Computer Science | Research field | Computational Mathematical Engineering | Lab. ID EC30 |
| Laboratory web site | http://cpm.ec.t.kanazawa-u.ac.jp | | |
| Research subjects | | | |
| <p>It is well known that spurious solutions, which are not true solutions, are often given in solving nonlinear differential equations numerically. In numerical simulations, we can not point out whether the given numerical solutions are true ones or spurious correctly. One of the indispensable logical steps is to study the effects of several types of errors in discretized calculation system on the structure of numerical solutions. In particular, we focus our studies on the dependence of bifurcation processes on random errors in order to get reasonable numerical solutions of fluid equations, reaction-diffusion equations and so on. In addition, independently the fields of number system, fractal and tiling have been studied.</p> | | | |
| Master/Doctor course: Education policy, curriculum, typical activity in the laboratory | | | |
| <p>Master course: The first grade students take seminar of numerical analysis using English and/or Japanese textbooks. At the beginning of the second grade, the students select concrete nonlinear differential equations for their practical subject. In every seminar, discussions based on calculated results are done from theoretical and numerical view points with staffs.</p> <p>Doctor course: The first and second grade students take seminar of numerical analysis using English papers. On the other hand, the students study numerical simulations for concrete nonlinear differential equations by using high performance computers. In every seminar, discussions based on calculated results are done from theoretical and numerical view points with staffs. Doctor students are encouraged to go for outer activities, participating research workshops/meetings, international conferences. Financial supports to attend these conferences are usually available.</p> <p>As for foreign students, all activities or correspondences in the laboratory are done in English.</p> | | | |
| Daily life in the laboratory, etc. | | | |
| <p>Personal working desk with a personal computer is available for every student. Also the several high performance computers can be used for numerical calculations. Visualization software can be used to capture the clear profiles of phenomena.</p> | | | |
| Message or comments by the laboratory faculty staffs | | | |
| <p>Numerical simulation technique is one of the strongest tools in fields of science and engineering. Therefore, to study nonlinear systems on the basis of numerical analysis and dynamical system theory will be effective also after graduation. Please enjoy the world of numerical simulations and stretch your imagination.</p> | | | |
| Recent Master theses in these 3 years (+ more if appropriate) | | | |
| year.month | Thesis title (including English translation of Japanese thesis title) | | |
| 2013.3 | Numerical Study on Influence of Noises in Transonic flow Around an Elliptic Cylinder | | |
| Recent Doctoral theses in these 3 years (+ more if appropriate) | | | |
| year.month | Thesis title (including English translation of Japanese thesis title) | | |
| 2014.3 | Study on Effects of Numerical Conditions on Reliability of Fluid Numerical Simulations | | |
| Laboratory mail address | Itaru Hataue <hataue *at* is.t.kanazawa-u.ac.jp> | | |
| Laboratory mail address | Fumihiko Enomoto <enomoto *at* se.kanazawa-u.ac.jp> | | |