
Invited Workshop : Verified Computation of Solutions for Partial Differential
Equations and Related Topics

Invited Organizer: Mitsuhiro T. Nakao
(Faculty of Mathematics, Kyushu University, Japan)

May 26th

18:00--20:00 reception

May 27th

10:50--11:00 opening

[Session 1: Chair M. Plum]

11:00--11:30 M.-N. Kim (Kyushu University, Japan)

"Numerically verified bifurcated solutions of 3 dimensional
Rayleigh-Benard convection problem"

11:30--12:00 S. Oishi (Waseda University, Japan)

"Numerical existence theorem for solutions of fixed point type
equations and its applications"

(lunch)

[Session 2: Chair K. Mischaikow]

14:00--14:30 M. Langer (University of Strathclyde, UK)

"Eigenvalue enclosures and exclosures for non-self-adjoint problems in
hydrodynamics"

14:30--15:00 B. M. Brown (Cardiff University, UK)

"Enclosures for eigenvalues of selfadjoint and non selfadjoint
ordinary differential equations"

(coffee break)

[Session 3: Chair M. Brown]

15:30--16:00 T. Kinoshita (Kyushu University, Japan)

"On the constants of a priori error estimates for the H²₀-projection in
Ritz-Galerkin methods"

16:00--16:30 Y. Watanabe (Kyushu University, Japan)

"An eigenvalue excluding method for the Orr-Sommerfeld problem"

16:30--17:00 M. Plum (University of Karlsruhe, Germany)

"A computer-assisted existence and multiplicity proof for travelling
waves in a nonlinearly supported beam"

17:00--17:30 K. Nagatou (Kyushu University, Japan)

"Orbital stability investigations for travelling waves in a
nonlinearly supported beam"

May 28th

[Session 4: Chair S. Murashige]

10:30--11:00 Z. Wang (Nanjing University, China)

"Error bound for differential linear variational inequality"

11:00--11:30 M. Tabata (Kyushu University, Japan)

"A numerical convergence study of an energy stable finite element scheme for two-fluid flow problems"

11:30--12:00 K. Hashimoto (Nakamura Gakuen University, Japan)

"A numerical verification method for solutions of nonlinear parabolic problems"

12:00--12:30 S. Ei (Kyushu University, Japan)

"Dynamics of boundary spikes for Gierer-Meinhardt model in 2D"

(lunch)

[Session 5: Chair N. Yamamoto]

14:00--14:30 T. Tsuchiya (Ehime University, Japan)

"An iterative scheme for free boundary problems defined with the Hadamard variation"

14:30--15:00 K. Kobayashi (Kanazawa University, Japan)

"A constructive a priori error estimation for finite element discretizations in a non-convex domain using mesh refinement"

(coffee break)

[Session 6: Chair T. Tsuchiya]

15:30--16:00 K. Mischaikow (Rutgers University, USA)

"Validated Continuation and Paths of Equilibria for Infinite Dimensional Problems"

16:00--16:30 N. Yamamoto (The University of Electro-Communications, Japan)

"An application of the Lohner method for boundary value problems of ODEs"

16:30--17:00 T. Minamoto (Saga University, Japan)

"Verified numerical computation of a period of unstable periodic orbits for the Rossler system"

17:00--17:30 S. Murashige (Future University-Hakodate, Japan)

"Numerical stability analysis of periodic solutions of ordinary differential equations"

17:30-- closing remarks

19:00--21:00 Excursion (Harbour Cruise)

May 29th

10:30--17:00 open discussions

18:30--20:30 Banquet

This workshop is sponsored by Grants-in-Aid for Scientific Research (S) "Development of computer assisted analysis for complicated nonlinear phenomena"