

21st Century COE Program

Development of Dynamic Mathematics with High Functionality

**Research Products
2003-2006**

High Functionality

KYUSHU UNIVERSITY

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2. Tabata, M., Characteristic and upwind finite element methods for flow problems, Twelfth International Conference on Finite Element Methods in Flow Problems, Meijo University, Nagoya, Japan, April, 2003.
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4. Kawashima, S., Dissipative structure and entropy for hyperbolic systems of balance laws, Workshop on Multiphase Fluid Flows and Multi-Dimensional Hyperbolic Problems, Isaac Newton Institute, Cambridge, UK, March-April, 2003.
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7. Tanaka, S. and Nishii, R., Models of deforestation with spatial dependency by human population interactions, SPRUCE IV, Lund University, Sweden, June, 2003.
8. S. Taniguchi, Quadratic Wiener functionals and solitons, Workshop on Stochastic Partial Differential Equations and Related Topics, University of Warwick, Coventry, UK, August, 2003.
9. Kawasaki, H., A game-theoretic aspect of conjugate sets for a nonlinear programming problem, The third International Symposium of Nonlinear Analysis and Convex Analysis, Tokyo, Japan, August, 2003.

10. Kawasaki, H., Conjugate sets for a nonlinear programming problem, The 18th International Symposium on Mathematical Programming, Technical University of Denmark, Copenhagen, Denmark, August, 2003.
11. Eiichi Bannai, Various kinds of tight designs and their existence problems, Advances in Graph and Matroid Theory, A Conference in honoring Neil Robertson. Ohio State University, USA, December, 2003.
12. Kaneko, M., Supersingular elliptic curves and modular forms, The Web of Modularity, An NSF-CBMS Conference, University of Illinois at Urbana Champaign, USA, June, 2003.
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2. Y. Watanabe, M. Plum and M. T. Nakao, A Computer Assisted Proof for the Orr-Sommerfeld Problem, 11th GAMM - IMACS International Symposium on Scientific Computing, Computer Arithmetic and Validated Numerics SCAN2004, Fukuoka, Japan, October, 2004.
3. Nakao, M.T., Numerical verification of solutions for the stationary driven-cavity problems, Taiwan-Japan Joint Conference on Nonlinear Analysis, Taipei, Taiwan, November, 2004.

4. Nakao, M.T., Several topics on numerical verification of solutions for problems related to Navier-Stokes equations, 2004 Kyushu-Kyungpook International Mini-Conference on Numerical Methods for Partial Differential Equations, Daegu, Korea, November, 2004.
5. Tabata, M., Robustness of a characteristic finite element scheme of second order in time increment, The 3rd International Conference on Computational Fluid Dynamics, Westin Harbour Castle, Toronto, Canada, July, 2004.
6. Tabata, M., A finite element scheme for two-layers flow problems, The 7th China-Japan Joint Seminar for Computational Mathematics and Scientific Computing, Zhang Jiajie, China, August, 2004.
7. Tabata, M., The mass-conservative upwind finite element approximation and its application to the density-dependent Navier-Stokes equations, The 1st Czech-Japanese Seminar in Applied Mathematics, Czech Technical University, Czech, August, 2004.
8. Kawashima, S., Dissipative structure for symmetric hyperbolic systems, The 6th International Workshop on Mathematical Aspects of Fluid and Plasma Dynamics, Kyoto University, Kyoto, Japan, September, 2004.
9. Araki, Y. and Konishi, S., Functional discriminant analysis via regularized radial basis function networks, 3rd Annual International Conference on Statistics, Mathematics and Related Fields, Honolulu, USA., June, 2004.
10. Araki, Y. and Konishi, S., Functional discriminant analysis for microarray gene expression data via radial basis function networks, COMPSTAT 2004, Prague, Czech Republic, August, 2004.
11. S. Taniguchi, Brownian sheet and reflectionless potentials, Stochastic Analysis, Geometry, and related topics, Keio Univ., Hiyoshi, Japan, June, 2004.
12. S. Taniguchi, Reflectionless Potentials and stochastic analysis, Stochastic problems and Nonlinear PDEs, Kyoto Univ., Kyoto, Japan, November, 2004.
13. Kawasaki, H., A cooperative game induced from conjugate sets, The 8th International Conference on Nonlinear Functional Analysis and Applications, Masan, Korea, August, 2004.
14. Kawasaki, H., Instability of multi-phase partition problems and its game-theoretic aspects, The 6th International Conference on Optimization, Ballarat, Australia, December, 2004.

15. Shigemizu, D. and Maruyama, O., Searching for regulatory elements of alternative splicing events using phylogenetic footprinting, 4th Workshop on Algorithms in Bioinformatics, Bergen, Norway, September, 2004.
16. Sakai, H. and Maruyama, O., Extensive search for discriminative features of alternative splicing, Pacific Symposium on Biocomputing 9, Hawaii, USA, January, 2004.
17. Eiichi Bannai, On Gaussian designs, University of Geneva, Italy, May, 2004.
18. Eiichi Bannai, (No special title) , Workshop on Open Problems in association Schemes, Busan, Korea, July, 2004.
19. Eiichi Bannai, Various kinds of tight designs and their existence problems, Com2Mac Conference on Association schemes, codes and designs, Busan, Korea, July, 2004.
20. Eiichi Bannai, A survey on spherical designs, Workshop on Distance-regular graphs and finite geometry Busan, Korea, July, 2004.
21. Kaneko, M., On extremal quasimodular forms, Modular forms and related topics, KIAS-POSTECH-SNU International Number Theory Workshop, Seoul, Korea, December, 2004.
22. Wakayama, M., Gamma and sine functions for Lie groups, Harmonic Analysis and Homogeneous Spaces, Leiden, the Netherlands, August, 2004.
23. Tezuka, S., Derandomization of randomized quasi-Monte Carlo integration, Monte Carlo and Quasi-Monte Carlo Methods (MC2QMC2004), Juan-les-Pins, France, June, 2004.
24. Tezuka, S., and Harase, S., Improving the high-dimensional uniformity of Mersenne Twister, Monte Carlo and Quasi-Monte Carlo Methods (MC2QMC2004), Juan-les-Pins, France, June, 2004.
25. Tezuka, S., High-dimensional integrals related to grid computing, Modern Computational Methods in Applied Mathematics (MCM2004), Bedlewo, Poland, June, 2004.
26. Tezuka, S., High-dimensional integrals related to grid computing (Part II), Dagstuhl seminar on Algorithms and Complexity for Continuous Problems, Dagstuhl, Germany, September, 2004.
27. Tezuka, S., Super Mersenne Project, Invited talk at the Conference on the New Development of Numerical Analysis for the 21 Century, RIMS, Kyoto University, Japan, November, 2004. (in

Japanese)

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1. Maruno, K., Soliton Resonance and Web Structure in Discrete Integrable Systems, World Congress for Nonlinear Analysts, Orland, Florida, USA, June, 2004.
2. Maruno, K., Ankiewicz, A. and Akhmediev, N., Dissipative Solitons in the Discrete Complex Ginzburg-Landau Model, The International Symposium on Nonlinear Theory and its Applications (NOLTA 2004), Fukuoka, Japan, November, 2004.
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2005

Research Papers

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Presentations at the International Conferences

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2. Nakao, M.T., On numerical verification of solutions for three dimensional heat convection problems, Dagstuhl Seminar on Algebraic and Numerical Algorithms and Computer-assisted Proofs, Schloss Dagstuhl, Germany, September, 2005.
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15. Kimura, M., Adaptive mesh finite element method for pattern formation, The Second Czech-Japanese Seminar in Applied Mathematics, Kuju, Japan, September, 2005.
16. Kimura, M., Adaptive mesh finite element method for several pattern formations, 2005 Taiwan-Japan Joint Workshop on Numerical Analysis and Scientific computation, Taipei, Taiwan, November, 2005.
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2006

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Faculty of Mathematics Kyushu University
6-10-1 Hakozaki Higashi-ku Fukuoka 812-8581
TEL 092-642-7087 FAX 092-642-2779
e-mail coe@math.kyushu-u.ac.jp
<http://www.math.kyushu-u.ac.jp/coe/index.html>