Curriculum Vitae

Takagi, Izumi (高木　泉)

Contact Information:
Mathematical Institute
Tohoku University
Sendai, 980-8578
Japan
Phone: +81-22-795-6401 (Office),　E-mail: takagi@m.tohoku.ac.jp

Rank: Professor

Birthdate: November 2, 1950
Nationality: Japanese

Education:

March, 1973	BSc., Mathematical Institute, Tohoku University, Sendai, Japan
March, 1976	MSc., Mathematical Institute, Tohoku University, Sendai, Japan
September, 1985	DSc., Mathematical Insitute, Tohoku University, Sendai, Japan

Professional Experience:

April, 1977–	Instructor, Tokyo Metropolitan College of Aeronautical
–September, 1982	Engineering
October, 1982–	Assistant Professor, Faculty of Science, Tohoku University
–July, 1982	
August, 1986–	Lecturer, Faculty of Science, Tohoku University
–March, 1988	
April, 1988–	Associate Professor, Faculty of Science, Tohoku University
–March, 1995	
April, 1995–	Professor, Graduate School of Science, Tohoku University

Academic Experience:

October, 1983–	Visiting Member, Courant Institute for Mathematical Sciences,
–August, 1984	New York University.
Fall, 1988	Visiting Assistant Professor, University of Minnesota
Winter-Summer, 1989	Visiting Member, University of Minnesota
Fall, 1993	Visiting Assistant Professor, University of Minnesota

Administrative Service:

April, 2000–	Chair, Mathematical Institute, Tohoku University
–March, 2001	
April, 2005–	Chair, Mathematical Institute, Tohoku University
–March, 2006	
November, 2005–	Director, Tohoku University Kita-aobayama Library
–March, 2009	
April, 2008–	Associate Dean, Graduate School of Science, Tohoku University
–March, 2011	

Editorial Service:

1999–	Editor, Funkcialaj Ekvacioj
2000–2012	Editor, Tohoku Mathematical Journal

Publications

[1] *Stability of bifurcating solutions of the Gierer-Meinhardt systems*, Tohoku Mathematical Journal **31** (1979), 221-246.

[2] *A priori estimates for stationary solutions of an activator-inhibitor model due to Gierer and Meinhardt*, Tohoku Mathematical Journal **34** (1982), 113-132.

[3] *Global stability of stationary solutions to a nonlinear diffusion equation in phytoplankton dynamics*, (with Hitoshi Ishii), Journal of Mathematical Biology **16** (1982/83), 1-24.

[4*] *A nonlinear diffusion equation in phytoplankton dynamics with self-shading effect*, (with Hitoshi Ishii), Mathematics in biology and medicine (Bari, 1983), 66-71, Lecture Notes in Biomath. **57**, Springer, Berlin, 1985.

[5] *Point-condensation for a reaction-diffusion system*, Journal of Differential Equations **61** (1986), 208-249.

[6] *On the Neumann problem for some semilinear elliptic equations and systems of activator-inhibitor type*, (with Wei-Ming Ni), Transactions of the American Mathematical Society **297** (1986), 351-368.

[7] *Large amplitude stationary solutions to a chemotaxis system*, (with Chang-Shou Lin and Wei-Ming Ni), Journal of Differential Equations **72** (1988), 1-27.

[8] *On the shape of least-energy solutions to a semilinear Neumann problem*, (with Wei-Ming Ni), Communications on Pure and Applied Mathematics **44** (1991), 819-851.

[9*] *On the existence and shape of solutions to a semilinear Neumann problem*, (with Wei-Ming Ni), Nonlinear diffusion equations and their equilibrium states, 3 (Gregynog, 1989), 425-136, Progress in Nonlinear Differential Equations and their Applications, 7, Birkhäuser Boston, Boston, MA, 1992.

[10] *Singular behavior of least-energy solutions of a semilinear Neumann problem involving crtical Sobolev exponents*, (with Xing Bin Pan and Wei-Ming Ni), Duke Mathematical Journal **67** (1992), 1-20.

[11] *Locating the peaks of least-energy solutions to a semilinear Neumann problem*, (with Wei-Ming Ni), Duke Mathematical Journal **70** (1993), 247-281.

[12*] *Spike-layers in semilinear elliptic singular perturbation problems*, (with Wei-Ming Ni), Degenerate diffusions (Minneapolis, MN, 1991), 131-139, IMA Volumes in Mathematics and its Applications, Springer, New York, 1993.

[13] *Point condensation genereated by a reaction-diffusion system in axially symmetric domains*, (with Wei-Ming Ni), Japan Journal of Industrial and Applied Mathematics **12** (1995), 327-365.

[14*] *Spiky patterns and their stability in a reaction-diffusion system*, Proceedings of the Korea-

Japan Partial Differential Equations Conference (Taejon, 1996), 8pp, Lecture Notes Series 39, Seoul National University, Seoul, 1997.

[15] *On the location and profile of spike-layer solutions to a singularly perturbed semilinear Dirichlet problem: intermediate solutions*, (with Wei-Ming Ni and Juncheng Wei), Duke Mathematical Journal **94** (1998), 597-618.

[16*] *The work of Yoshikazu Giga—traces of motions of surfaces* (in Japanese), (with Hitoshi Ishii), Sugaku **52** (2000), 188-196.

[17*] *Closed surfaces minimizing the bending energy under prescribed area and volume*, (with Takeyuki Nagasawa), International Conference on Differential Equations, Volumes I, 2 (Berlin, 1999), 561-563, World Scientific Publications, River Edge, NJ, 2000.

[18] *Stability of least energy patterns of the shadow system for an activator-inhibitor model*, (with Wei-Ming Ni and Eiji Yanagida), Japan Journal of Industrial and Applied Mathematics **18** (2001), 259-272.

[19] *Method of rotating planes applied to a singularly perturbed Neumann problem*, (with Chang-Shou Lin), Calculus of Variations and Partial Differential Equations **13** (2001), 519-536.

[20] *Bifurcating critical points of bending energy under constraints related to the shape of red blood cells*, (with Takeyuki Nagasawa), Calculus of Variations and Partial Differential Equations **16** (2003), 63-111.

[21] *The dynamics of a kinetic activator-inhibitor system*, (with Wei-Ming Ni and Kanako Suzuki), Journal of Differential Equations **229** (2006), 426-465.

[22*] *Global solutions to a one-dimensional nonlinear parabolic system modeling colonial formation by chemotactic bacteria*, (with Khin Pyu Phyu Htoo and Masayasu Mimura), Asymptotic analysis and singularities–elliptic and parabolic PDEs and related problems, 613-622, Advanced Studies in Pure Mathematics **47-2** (2007), Mathematical Society of Japan, Tokyo.

[23*] *Determination of the limit sets of trajectories of the Gierer-Meinhadt system without diffusion*, (with Wei-Ming Ni and Kanako Suzuki), Asymptotic analysis and singularities–elliptic and parabolic PDEs and related problems, 689-708, Advanced Studies in Pure Mathematics **47-2** (2007), Mathematical Society of Japan, Tokyo.

[24*] *On the role of the source terms in an activator-inhibitor system proposed by Gierer and Meinhardt*, (with Kanako Suzuki), Asymptotic analysis and singularities–elliptic and parabolic PDEs and related problems, 749-766, Advanced Studies in Pure Mathematics **47-2** (2007), Mathematical Society of Japan, Tokyo.

[25] *Representation formula for the critical points of the TAdjbakhsh-Odeh functional and its application*, (with Kohtaro Watanabe), Japan Journal of Industrial and Applied Mathematics **25** (2008), 331-372.

[26*] *Behavior of solutions to an activator-inhibitor system with basic production tems*, (with Kanako Suzuki), Proceedings of Czech-Japanese Seminar in Applied Mathematics 2008, 49-59, COE Lecture Note, **14**, Kyushu University Faculty of Mathematics, Fukuoka, 2009.

[27*] *Collapse of patterns and effect of basic production terms in some reaction-diffusion systems*, (with Kanako Suzuki), Current advances in nonlinear analysis and related topics, 163-187, GAKUTO International Series on Mathematical Sciences and Applications, **32**, Gakkotosho, Tokyo, 2010.

[28] *On the role of basic production terms in an activator-inhibitor system modeling biological pattern formation*, (with Kanako Suzuki), Funkcialaj Ekvacioj **54** (2011), 237-274.

[29*] *Global bifurcation structure on a shadow system with a source term–representation of all solutions*, (with Hideaki Takaichi and Shoji Yotsutani), Discrete and Continuous Dynamical Systems 2011, Dynamical systems, differential equations and applications, 8th AIMS Conference. Supplement Volume II, 1344-1350.

[30] *Pattern formation in a diffusion-ODE model with hysteresis*, (with Anna Marciniak-Czochra and Madoka Nakayama), Differential and Integral Equations **28** (2015), 655-694.

Papers numbered with an asterisk are non-refereed articles in conference proceedings.