

Curriculum Vitae

Shunsaku Nii

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Personal Information:

Family name: Nii

Given name: Shunsaku

Birthdate: 4 October 1968

Birthplace: Kanazawa, Ishikawa prefecture, Japan

Nationality: Japan

Employment:

Title: Associate Professor

Employer: Kyushu University

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Education:

Dr.Sc. 1995, Kyoto University,
Adviser: Prof.Nishida

MSc. 1994, Kyoto University,
Adviser: Prof.Nishida

BSc. 1992 Kyoto University

Professional Appointments:

1 October 2002 – Present: Associate Professor, Kyushu University
1 April 1996 – 30 September 2002: Research Associate, Saitama University
October 1997 – September 1999: Visiting Researcher, Brown University
1 April 1995 – 31 March 1996: JSPS Research Fellow (PD), Kyoto University
1 April 1994 – 31 March 1995: JSPS Research Fellow (DC), Kyoto University

Prizes:

Takebe Award, Mathematical Society of Japan, 1998

Membership of Academic Societies:

Mathematical Society of Japan
Society of Industrial and Applied Mathematics

Research Grants Received:

Grant-in-Aid for Scientific Research, 1994 – 1995, 1997 – 1998, 2000 – 2001, 2002 – 2004, 2009 – 2011

List of Publications:**Papers:**

- Bifurcations of stationary solutions with triple junctions in phase separation problems –A new view of bifurcation analysis–, in *Physica D* 238 (2009), pp. 1050 -1055.
- An Infinite-dimensional Evans function theory for elliptic boundary value problems, with Jian Deng, in *Journal of Differential Equations* 244 (2008), pp. 753 - 765.
- Infinite dimensional Evans function theory for elliptic eigenvalue problems in a channel, with Jian Deng, in *Journal of Differential Equations* 225 (2006), pp. 57 - 89.
- Pitchfork and Hopf bifurcations of traveling pulses generated by coexisting front and back waves, in *Methods and Applications of Analysis* 7 (2000), pp. 615 - 640.
- A topological approach to stability of pulses bifurcating from an inclination-flip homoclinic orbit, in *Methods and Applications of Analysis* 7 (2000), pp. 205 - 232.
- Accumulation of eigenvalues in a stability problem, in *Physica D* 142 (2000), pp. 70 - 86.

- A topological proof of stability of N-front solutions of the FitzHugh-Nagumo equations, in Journal of Dynamics and Differential Equations 11 (1999), pp. 515 - 555.
- Stability of travelling multiple-front (multiple-back) wave solutions of the FitzHugh-Nagumo equations, in SIAM Journal of Mathematical Analysis 28 (1997) pp.1094 - 1112.
- An extension of the stability index for travelling wave solutions and its application to bifurcations in SIAM Journal of Mathematical Analysis 28 (1997) pp.402 - 433.
- N-homoclinic bifurcations for homoclinic orbits changing their twisting, in Journal of Dynamics and Differential Equations 8 (1996) pp.549 - 572.

Proceedings:

- π_1 and π_2 theories of operators, in Problems in the Calculus of Variations and Related Topics (Kyoto, 2008). RIMS Kokyuroku, No. 1628 (2009), 58 - 62.
- Travelling waves and linearised eigenvalue problem associated with them, in Proceedings of the International Conference on Asymptotics in Non-linear Diffusive Systems (Sendai, 1997), 113 - 122, Tohoku Math. Publ., 8, Tohoku Univ., Sendai, 1998.
- Stability and bifurcations of travelling waves of reaction diffusion equations, in Proceedings of the Korea-Japan Partial Differential Equations Conference (Taejon, 1996), 11 pp., Lecture Notes Ser., 39, Seoul Nat. Univ., Seoul, 1997.
- An approach to eigenvalue problems associated with stability of travelling waves, in Differential equations and applications (Hangzhou, 1996), 249 - 257, Internat. Press, Cambridge, MA, 1997.
- A topological approach to linear eigenvalue problems for travelling waves, in Study of partial differential equations by means of functional analysis (Kyoto, 1996). RIMS Kokyuroku, No. 969 (1996), 18 - 28.
- N-homoclinic bifurcations for twisted homoclinic orbits, in Dynamical systems and chaos, Vol. 1 (Hachioji, 1994), 206 - 209, World Sci. Publishing, River Edge, NJ, 1995.

Surveys:

- Bifurcations of heteroclinic loops in dynamical systems and those of traveling waves in reaction diffusion equations, in JSMB Newsletter, No. 56 (2008) pp.5 - 9 (in Japanese)

- Introduction to Homology and Conley Index, in Buseikenkyu vol.78 (2002) pp.144 - 158 (in Japanese)
- Topological methods in stability analysis of travelling waves, in Sugaku 51 (1999) pp.241- 256 (in Japanese, English translation is in Amer. Math. Soc. Transl.(2), Vol. 204. (2001) pp. 45-62.)

Other Scientific Activities:

Organizer of:

- Workshop on Applied Topology & Dynamical Systems (2011)
- RIMS Workshop on Dynamical Systems (2010)
- RIMS Workshop on Dynamical Systems (2009)
- Autumn School on Nonlinear Science (2007)

Scientific committee:

- The 4th Mathematical Society of Japan, Seasonal Institute, Nonlinear Dynamics in Partial Differential Equations (2011)
- Far-From-Equilibrium-Dynamics 2011