

Team Kokubu, published papers in FY 2011

1. Zin Arai, Hiroshi Kokubu and Ippei Obayashi, "Capturing the global behavior of dynamical systems with Conley-Morse graphs", *Advances in Cognitive Neurodynamics (III)*, 2012, Springer. (in press)
2. Zin Arai, Marcio Gameiro, Tomas Gedeon, Hiroshi Kokubu, Konstantin Mischaikow, Hiroe Oka, "Graph-based topological approximation of saddle-node bifurcation in maps", to appear in *RIMS Kokyuroku Bessatsu*. (DOI:なし)
3. Yoshiyuki Kubota, Fuyuki Karube, Masaki Nomura, Allan T. Gullledge, Atsushi Mochizuki, Andreas Schertel and Yasuo Kawaguchi, "Conserved properties of dendritic trees in four cortical interneuron subtypes", *Scientific Reports*, Vol.1, 89 (13 pages) (2011). (DOI:10.1038/srep00089)
4. Obayashi Ippei, "Computer-assisted verification method for invariant densities and rates of decay of correlations", *SIAM J. Appl. Dyn. Syst.* Vol. 10 (2011), pp. 788-816 (DOI:10.1137/09077864X)
5. Kei-Ichi Ueda, Yasumasa Nishiura, "A mathematical mechanism for instabilities in stripe formation on growing domains", *Physica D241* (2011), pp. 37-59. (DOI:10.1016/j.physd.2011.09.016)
6. Masaaki Yadome, Kei-Ichi Ueda, Masaharu Nagayama, "Chaotic motion of propagating pulses in the Gray-Scott model", *Physical Review E* 83 056207 (6 pages) 2011/5/9 (DOI: 10.1103/PhysRevE.83.056207)
7. Takaaki Aoki and Toshio Aoyagi, "Self-organized network of phase oscillators coupled by activity-dependent interactions", *Physical Review E*, vol.84, Issue 6, 066109 (14 pages) (2011). (DOI:10.1103/PhysRevE.84.066109)
8. Takuma Tanaka and Toshio Aoyagi, "Multi-stable attractors in a network of phase oscillators with three-body interactions", *Physical Review Letters*, vol.106, Issue 22, 224101(4 pages) (2011). (DOI:10.1103/PhysRevLett.106.224101)
9. Kaiichiro Ota, Takaaki Aoki, Koji Kurata and Toshio Aoyagi, "Asymmetric neighborhood functions accelerate ordering process of self-organizing maps", *Physical Review E*, vol.83, Issue 2, 021903(9 pages) (2011). (DOI:10.1103/PhysRevE.83.021903)
10. Ikuhiro Yamaguchi, Yutaro Ogawa, Yasuhiko Jimbo, Hiroya Nakao, and Kiyoshi Kotani, "Reduction Theories Elucidate the Origins of Complex Biological Rhythms Generated by Interacting Delay-Induced Oscillations", *PLoS ONE* 6, e26497 (1-10) (2011). (DOI:10.1371/journal.pone.0026497)
11. Yoji Kawamura, Hiroya Nakao, and Yoshiki Kuramoto, "Collective phase description of globally coupled excitable elements", *Physical Review E* 84, 046211 (1-12) (2011).

(DOI:10.1103/PhysRevE.84.046211)

12. Shigefumi Hata, Kensuke Arai, Roberto F. Galán, and Hiroya Nakao, "Optimal phase response curves for stochastic synchronization of limit-cycle oscillators by common Poisson noise", *Physical Review E* 84, 016229 (1-10) (2011). (DOI:10.1103/PhysRevE.84.016229)

13. Takaaki Aoki, Yuri Kamitani and Toshio Aoyagi, "Self-organizing network of coupled neural oscillators with synaptic plasticity", *Proc. 2011 International Symposium on Nonlinear Theory and its Applications (NOLTA2011)*, pp.350-353 (2011). (DOI:なし)

14. N. Ogihara, S. Aoi, Y. Sugimoto, K. Tsuchiya, and M. Nakatsukasa, "Forward dynamic simulation of bipedal walking in the Japanese macaque: investigation of causal relationships among limb kinematics, speed, and energetics of bipedal locomotion in a non-human primate", *American Journal of Physical Anthropology*, 145(4): 568-580, 2011 (DOI: 10.1002/ajpa.21537).

15. S. Aoi, T. Yamashita, and K. Tsuchiya, "Hysteresis in the gait transition of a quadruped investigated using simple body mechanical and oscillator network models", *Physical Review E*, 83(6):061909, 2011 (DOI: 10.1103/PhysRevE.83.061909).

16. S. Aoi, N. Ogihara, T. Funato, and K. Tsuchiya, "Sensory regulation of stance-to-swing transition in generation of adaptive human walking: A simulation study", *Robotics and Autonomous Systems*, 60(5): 685-691, 2012 (DOI: 10.1016/j.robot.2011.12.005).

17. S. Aoi, S. Fujiki, T. Yamashita, T. Kohda, K. Senda, and K. Tsuchiya, "Generation of adaptive splitbelt treadmill walking by a biped robot using nonlinear oscillators with phase resetting", *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems*, pp. 2274-2279, 2011 (DOI: 10.1109/IROS.2011.6094583).

18. S. Aoi, S. Fujiki, D. Katayama, T. Yamashita, T. Kohda, K. Senda, and K. Tsuchiya, "Experimental verification of hysteresis in gait transition of a quadruped robot driven by nonlinear oscillators with phase resetting", *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems*, pp. 2280-2285, 2011 (DOI: 10.1109/IROS.2011.6094480).

19. T. Funato, T. Hosokawa, S. Aoi, N. Tomita, and K. Tsuchiya, "Isochron of human walking derived from the perturbation of floor", *Proceedings of the 5th Internal Symposium on Adaptive Motion in Animals and Machines*, pp. 35-36, 2011 (DOI コードなし).

20. T. Funato, S. Aoi, N. Tomita, and K. Tsuchiya, "Human gait control suggested by the evaluation of the fluctuation of synergy", *Proceedings of IEEE/SICE International*

- Symposium on System Integration, pp. 267-272, 2011 (DOI: 10.1109/SII.2011.6147458).
21. Sato, Y., Aoki, S., Yanagihara, D. "Gait modification during approach phase when stepping over an obstacle in rats", *Neurosci. Res.*, 72: 263-269, 2012 (DOI: 10.1016/j.neures.2011.11.008).
 22. S. Aoi, N. Hayashi, T. Kondo, D. Yanagihara, S. Aoki, H. Yamaura, N. Ogihara, T. Funato, N. Tomita, K. Senda, and K. Tsuchiya, "Hindlimb obstacle avoidance during rat locomotion based on a neuromusculoskeletal model", *Proceedings of the 4th IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics*, (accepted).
 23. S. Fujiki, S. Aoi, T. Kohda, K. Senda, and K. Tsuchiya, "Emergence of hysteresis in gait transition of a hexapod robot driven by nonlinear oscillators with phase resetting", *Proceedings of the 4th IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics*, (accepted).
 24. T. Funato, Y. Yamamoto, S. Aoi, N. Tomita, and K. Tsuchiya, "Analysis of rhythm adjustment mechanism of human locomotion against horizontal perturbation", *Proceedings of the 4th IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics*, (accepted).