

References for Waves - June 26, 2008:

Papers with calculations like the Amari one presented (and Amari's paper itself!):

- S. Amari, "Dynamics of Pattern Formation in Lateral-Inhibition Type Neural Fields." *Biological Cybernetics*, 27:77-87, 1977.
- D. Pinto and G.B. Ermentrout, "Spatially structured activity in synaptically coupled neuronal networks II. Lateral inhibition and standing pulses." *SIAM J. Appl. Math.* 62: 226-243, 2001.
- D. Golomb and G.B. Ermentrout, "Slow excitation supports propagation of slow pulses in networks of excitatory and inhibitory populations." *Phys. Rev. E* 65 (6): art. no. 061911, 2002.
- J. Rubin and W. Troy, "Sustained spatial patterns of activity in neuronal populations without recurrent excitation." *SIAM J. Appl. Math.* 64: 1609-1635, 2004.

Papers with nonlocal Evans function theory, in order of roughly increasing generality:

- J. Rubin, "A nonlocal eigenvalue problem for the stability of a traveling wave in a neuronal medium." *Disc. Cont. Dyn. Sys. - A* 4: 925-940, 2004. **theta model**
- P. Bressloff and S. Folias, "Front bifurcations in an excitatory neural network", *SIAM J. Appl. Math.* 65: 131-151, 2004.
- S. Folias and P. Bressloff, "Breathing pulses in an excitatory neural network", *SIAM J. Appl. Dyn. Syst.* 3: 378-407, 2004.
- S. Folias and P. Bressloff, "Stimulus-locked traveling waves and breathers in an excitatory neural network." *SIAM J. Appl. Math.* 65: 2067-2092, 2005.
- S. Coombes and M. Owen, "Evans functions for integral neural field equations with Heaviside firing rate function." *SIAM J. Appl. Dyn. Syst.* 3: 574-600, 2004.
- S. Coombes, "Waves, bumps, and patterns in neural field theories." *Biol. Cybern.* 93: 91-108, 2005.

- L. Zhang, “On stability of traveling wave solutions in synaptically coupled neuronal networks.” *Diff. Int. Equations* 16:513-536, 2003.
- L. Zhang, “Existence, uniqueness, and exponential stability of traveling wave solutions of some integral differential equations arising from neuronal networks.” *J. Diff. Eqn.* 197: 162-196, 2004.
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- Kapitula, Kutz, and Sandstede, “The Evans function for nonlocal equations.” *Indiana Univ. Math. J.* 53: 1095-1126, 2004.
- B Sandstede, “Evans functions and nonlinear stability of travelling waves in neuronal network models.” *International Journal of Bifurcation and Chaos* 17:2693-2704, 2007.

Classic Evans function theory:

- J.W. Evans, “Nerve axon equations, III: Stability of the nerve impulse.” *Indiana Univ. Math. J.* 22: 577-594, 1972.
- J.W. Evans, “Nerve axon equations, IV: The stable and unstable impulse.” *Indiana Univ. Math. J.* 24: 1169-1190, 1975.
- C.K.R.T. Jones, “Stability of the travelling wave solution of the Fitzhugh-Nagumo system.” *Trans. Amer. Math. Soc.* 286: 431-469, 1984.
- J. Alexander, R. Gardner and C. Jones, “A topological invariant arising in the stability analysis of travelling waves.” *Journal für die Reine und Angewandte Mathematik* 410: 167-212, 1990. **singular perturbation theory**
- R. Pego and M. Weinstein, “Eigenvalues, and instabilities of solitary waves.” *Phil. Trans. Roy. Soc. London* 340: 47-94, 1992.
- B. Sandstede, “Stability of multiple-pulse solutions.” *Trans. Amer. Math. Soc.* 350: 429-472, 1998.

- B. Sandstede, “Stability of travelling waves.” In *Handbook of Dynamical Systems*, Volume 2, edited by B. Fiedler. North-Holland/Elsevier, 2002.
- many others!