

Publications

Peer reviewed publications

1. Bässler, U., Wolf, H. & Stein, W. (2007) Functional recovery following manipulation of muscles and sense organs in the stick insect leg. *J. Comp. Physiol. A.*, in press [Epub ahead of print available].
2. Stein, W., DeLong, N., Wood, D. & Nusbaum, M.P. (2007) Divergent Cotransmitter Actions Underlie Motor Pattern Activation by a Modulatory Projection Neuron. *Europ. J. Neurosci.*, 26: 1148–1165.
3. Ausborn, J., Stein, W. & Wolf, H. (2007) Frequency Control of Motor Pattern by Negative Sensory Feedback. *J. Neurosci.*, 27: 9319-9328.
4. Smarandache, C.R. & Stein, W. (2007) Sensory-induced modification of two motor patterns in the crab, *Cancer pagurus*. *J. Exp. Biol.*, 210: 2912-2922.
5. Stein, W., Büschges, A. & Bässler, U. (2006) Intersegmental transfer of sensory signals in the stick insect leg muscle control system. *J. Neurobiol.* 66(11):1253-1269.
6. Stein, W., Smarandache, C.R., Nickmann, M. & Hedrich, U.B.S. (2006) Functional consequences of activity-dependent synaptic enhancement at a crustacean neuromuscular junction. *J. Exp. Biol.* 209: 1285-1300.
7. Stein, W., Eberle, C.C., & Hedrich, U.B.S. (2005) Motor pattern selection by nitric oxide in the stomatogastric nervous system of the crab. *Europ. J. Neurosci.* 21(10): 2767-2781.
8. Stein, W. & Ausborn, J. (2004) Analog modulation of digital computation in nerve cells: Simulating the stomatogastric nervous system of the crab. in: *Modelling and Simulation '2004* (Bobeanu C., ed), pp.148-152. Ghent, Belgium: Eurosis-ETI.
9. Straub, O., Mader, W., Ausborn, J & Stein, W. (2004) Motor output variability in a joint control system - a simulation study. in: *Modelling and Simulation '2004* (Bobeanu C., ed), pp.135-139. Ghent, Belgium: Eurosis-ETI.
10. Christie, A.E., Stein, W., Quinlan, J.E., Beenhakker, M.P., Marder, E. & Nusbaum, M.P. (2004) Actions of a histaminergic/peptidergic projection neuron on rhythmic motor patterns in the stomatogastric nervous system of the crab *Cancer borealis*. *J. Comp. Neurol.* 469:153-169.

11. Wood, D.E., Stein, W. & Nusbaum, M.P. (2000) Projection Neurons with Shared Cotransmitters Elicit Different Motor Patterns from the Same Neural Circuit. *J. Neurosci.* 20(23):8943-8953.
12. Schmitz, J. & Stein, W. (2000) Convergence of Load and Movement Information onto Leg Motoneurons in Insects. *J. Neurobiol.* 43: 424–436.
13. Stein, W. & Schmitz, J. (1999) Multimodal convergence of presynaptic afferent inhibition in insect proprioceptors. *J. Neurophysiol.* 83: 512–514.
14. Sauer, A.E. & Stein, W. (1999) Sensorimotor pathways processing vibratory signals from the femoral chordotonal organ of the stick insect. *J. Comp. Physiol. A*, 185: 21-31.
15. Stein, W. & Sauer, A.E (1999) Physiology of vibration sensitive afferents in the mesothoracic femoral chordotonal organ of the stick insect *Cuniculina impigra*. *J. Comp. Physiol. A*, 184: 253-263.
16. Stein, W. & Sauer, A.E (1998) Modulation of sensorimotor pathways associated with gain changes in a posture-control network of an insect. *J. Comp. Physiol. A* 183(4): 489-501.
17. Sauer, A.E., Büschges, A., & Stein, W. (1997) The role of presynaptic afferent inhibition in tuning sensorimotor pathways in an insect joint-control network. *J. Neurobiol.* 32: 359-376.
18. Bässler, U. & Stein, W. (1996) Contributions of structure and innervation pattern of the stick insect extensor tibiae muscle to the filter characteristics of the muscle-joint system. *J. Exp. Biol.* 199: 2185-2198.

Abstracts / Poster

1. Smarandache, C.R. & Stein, W. (2007). Convergence of a sensory pathway and a descending brain projection onto modulatory projection neurons. *Soc. Neurosci. 2007, San Diego, USA.*
2. Daur, N. & Stein, W. (2007). Functional aspects of a second spike-initiation zone in a sensory neuron. *Soc. Neurosci. 2007, San Diego, USA.*
3. Hedrich, U.B.S. & Stein, W. (2007). From the brain to the motor system: *in vivo* characterization of a descending pathway in the crab *Cancer pagurus*. *Soc. Neurosci. 2007, San Diego, USA.*
4. Ausborn, J., Stein, W., Mader, M. & Wolf, H. (2007). Proprioceptive feedback enables frequency regulation of pattern generators. *Proceedings of the 7th Meeting of the German Neuroscience Society / 31th. Göttingen Neurobiology Conference 2007.*

5. Mader, M., Straub, O., Daur, N., Ausborn, J. & Stein, W. (2007) A neuronal model for the detection of thresholds. *Proceedings of the 7th Meeting of the German Neuroscience Society / 31th. Göttingen Neurobiology Conference 2007.*
6. Hedrich, U.B.S., Smarandache, C.R. & Stein, W. (2007) Synaptic inputs to modulatory projection neurons. *Proceedings of the 7th Meeting of the German Neuroscience Society / 31th. Göttingen Neurobiology Conference 2007.*
7. Hedrich, U.B.S., Smarandache, C.R. & Stein, W. (2006) How two brain cells affect the filtering and chewing of food in the foregut of the crab. *Soc. Neurosci. 2006, Atlanta, USA.*
8. Smarandache, C.R., Hedrich, U.B.S. & Stein, W. (2006) The influence of a sensory cell on projection neurons in the stomatogastric nervous system of the crab. *Soc. Neurosci. 2006, Atlanta, USA.*
9. Daur, N., Smarandache, C.R., Hedrich, U.B.S. & Stein, W. (2006) In vivo activation of a sensory neuron in the stomatogastric nervous system of the crab. *Soc. Neurosci. 2006, Atlanta, USA.*
10. Hedrich, U.B.S., Nickmann, M., Smarandache, C.R. & Stein, W. (2005) Long term effects on facilitation at a neuromuscular junction of the crab. *Soc. Neurosci. 2005, Washington, USA.*
11. Smarandache, C.R. & Stein, W. (2005) The influence of a sensory cell on the central pattern generators in the stomatogastric nervous system of the crab. *Soc. Neurosci. 2005, Washington, USA.*
12. Stein, W., Mader, W., Smarandache, C.R., Hedrich, U.B.S. & Ausborn, J. (2005) The effects of a sensory neuron on a central pattern generator in artificially closed loop conditions. *Soc. Neurosci. 2005, Washington, USA.*
13. Straub, O., Daur, N., Ausborn, J., Mader, M. & Stein, W. (2005) How to switch from standing to walking. *Proceedings of the 6th Meeting of the German Neuroscience Society / 30th. Göttingen Neurobiology Conference 2005.* eds: H. Zimmermann and K. Krieglstein. *Neuroforum* 2005, 1 Suppl.: 451B.

14. Hedrich, U.B.S., Eberle, C.C. & Stein, W. (2005) Nitric oxide indirectly controls the central pattern generators in the stomatogastric nervous system of the crab. *Proceedings of the 6th Meeting of the German Neuroscience Society / 30th. Göttingen Neurobiology Conference 2005*. eds: H. Zimmermann and K. Krieglstein. *Neuroforum* 2005, 1 Suppl.: 83A.
15. Nickmann, M, Smarandache, C.R. & Stein, W. (2005) Temporal dynamics of facilitation at a crustacean neuromuscular junction. *Proceedings of the 6th Meeting of the German Neuroscience Society / 30th. Göttingen Neurobiology Conference 2005*. eds: H. Zimmermann and K. Krieglstein. *Neuroforum* 2005, 1 Suppl.: 73A.
16. Stein, W. & Smarandache, C.R. (2005) Characterization of a sensory input that entrains a central pattern generator in the stomatogastric nervous system of the crab. *Proceedings of the 6th Meeting of the German Neuroscience Society / 30th. Göttingen Neurobiology Conference 2005*. eds: H. Zimmermann and K. Krieglstein. *Neuroforum* 2005, 1 Suppl.: 82A.
17. Eberle, C.C., Hedrich, U.B.S. & Stein, W. (2004) Nitric oxide indirectly affects a central pattern generator in the stomatogastric nervous system of the crab. *Soc. Neurosci. 2004, San Diego, USA*.
18. Stein, W. & Smarandache, C.R. (2004) Entrainment of a central pattern generator by sensory feedback in the stomatogastric nervous system of the crab. *Soc. Neurosci. 2004, San Diego, USA*.
19. Eberle, C.C., Hedrich, U. B. S. & Stein, W. (2004) Nitric oxide affects the central pattern generators in the stomatogastric nervous system of the crab. *Interdisciplinary college 2004, Günne*.
20. Ausborn, J., Mader, W., Straub, O., & Stein, W. (2004) Modeling neuronal networks with MadSim. *Interdisciplinary College 2004, Günne*.
21. Ausborn, J., Mader, W., & Stein, W. (2003) The effect of presynaptic inhibition on the model gastric mill central pattern generator of the crab. *Soc. Neurosci. 2003, New Orleans, USA*.
22. Smarandache; C.R., Eberle, C.C. & Stein, W. (2003) A sensory neuron in a positive feedback loop and its influence on the gastric mill rhythm of the crab, cancer pagurus. *Soc Neuroci 2003, New Orleans, USA*.
23. Schmitz, J. & Stein, W. (2003) The Role of Nitric Oxide in a Sensorimotor Pathway of the Stick Insect. *Soc. Neurosci. 2003, New Orleans, USA*.

24. Smarandache, C.R & Stein, W. (2003) A sensory neuron in a positive feedback loop and its influence on a central pattern generator. *Proceedings of the 29th Göttingen Neurobiology Conference 2003.*
25. Mader W., Ausborn, J., Straub, O. & Stein W. (2003) MadSim - a tool for simulating biological neuronal networks. *Proceedings of the 29th Göttingen Neurobiology Conference 2003.*
26. Ausborn J., Mader W., Eberle, C.C. & Stein W. (2003) Functional consequences of presynaptic inhibition in an oscillatory network – a simulation study. *Proceedings of the 29th Göttingen Neurobiology Conference 2003.*
27. Ausborn J., Mader W., Eberle, C.C. & Stein W. (2003) Mechanisms of rhythm generation - modelling the gastric mill rhythm of the crab *Cancer pagurus*. *11. Crustaceologentagung, Feb. 2003, Ulm.*
28. Smarandache, C.R & Stein, W. (2003) Activation of a sensory neuron in the stomatogastric nervous system of *Cancer pagurus* and its effects on a central pattern generator. *11. Crustaceologentagung, Feb. 2003, Ulm.*
29. Stein, W. Hertzberg, S.R. & Nusbaum, M.P. (2001) Direct and indirect circuit modulation by cotransmitters. *Soc. Neurosci. 2001, San Diego, USA.*
30. Stein, W., Hertzberg, S.R. & Nusbaum, M.P. (2001) Functional compartmentalization of cotransmitter actions. *Proceedings of the 6th International Congress of Neuroethology 2001, Bonn.*
31. Stein, W. & Nusbaum, M.P. (2000) Convergence and divergence of peptide cotransmitter actions. *Soc. Neurosci. 2000, New Orleans, USA.*
32. Christie, A.E., Stein, W., Quinlan, J.E. & Nusbaum, M.P. (2000) Histaminergic innervation of the crab stomatogastric system. *Soc. Neurosci. 2000, New Orleans, USA.*
33. Christie, A.E., Quinlan, J.E., Stein, W., & Nusbaum, M.P. (1999) Identification of Histaminergic Pathways to the Crab STG. *East Coast Nerve Net, Woods Hole, USA.*
34. Sauer, A.E., Stein, W., Schmitz, J. & Wolf, H. (1999) Modulation of presynaptic inputs to chordotonal organ afferents in the stick insect by sensory and central neuronal pathways. *Proceedings of the 27th Göttingen Neurobiology Conference 1999.*
35. Stein, W. (1999) Local interneurons processing contralateral proprioceptive information in the stick insect. *Proceedings of the 27th Göttingen Neurobiology Conference 1999.*

36. Schmitz, J. & Stein, W. (1999) Information processing of load and position signals at the level of motoneurons in the stick insect. *Proceedings of the 27th Göttingen Neurobiology Conference 1999.*
37. Stein, W. & Schmitz, J. (1999) Response characteristics and presynaptic inhibition of campaniform sensilla afferents in the stick insect. *Proceedings of the 27th Göttingen Neurobiology Conference 1999.*
38. Sauer, A.E. & Stein, W. (1998) Central processing of vibration information from the femoral chordotonal organ in the stick insect *Cuniculina impigra*. *Proceedings of the 26th Göttingen Neurobiology Conference 1998.*
39. Stein, W. & Sauer, A.E. (1997) Vibration sensitivity of the femoral chordotonal organ in the stick insect *Cuniculina impigra*. *Proceedings of the 25th Göttingen Neurobiology Conference 1997.*
40. Stein, W. (1996) Interleg coupling in the stick insect *Cuniculina impigra*. *Proceedings of the 24th Göttingen Neurobiology Conference 1996.*
41. Stein, W. & Sauer, A.E. (1995) Neuronal mechanisms contributing to gain changes in proprioceptive feedback systems. *Proceedings of the 4th International Congress of Neuroethology 1995, Cambridge.*
42. Stein, W. & Sauer, A.E. (1995) The contribution of different neuronal elements to gain changes in proprioceptive feedback systems. *Proceedings of the 23rd Göttingen Neurobiology Conference 1995.*

Symposia and talks

1. Stein, W. (2007) Motor Pattern Selection in the Stomatogastric Nervous System by Nitric Oxide. *Proceedings of the 7th Meeting of the German Neuroscience Society / 31th. Göttingen Neurobiology Conference 2007.*
2. Smarandache, C.R. & Stein, W. (2006) The effects of the sensory cell AGR on the activities of projection neurons in the crab. *STG meeting, Atlanta, USA.*
3. Stein, W. (2005) Sensory feedback – what happens when you close the loop? *STG meeting, Washington, D.C., USA.*
4. Stein, W. & Smarandache, C.R. (2005) Sensory integration in the stomatogastric nervous system. *Arthropodenseminar, Bielefeld.*
5. Stein, W. (2005) Sensory integration and neuromodulation in rhythmically active systems - lessons from a small network. *General meeting of the NeuroCentrum Ulm, Ulm.*

6. Stein, W. (2003) Convergence and divergence of peptide cotransmitter actions: Functional consequences in a multifunctional network. *Proceedings of the 29th Göttingen Neurobiology Conference 2003*.
7. Stein, W., Eberle, C.C. & Smarandache, C.R. (2002) The stomatogastric nervous system of the edible crab: beyond *in vitro* rhythms. *Deutsche Zool. Gesellschaft 2002, Halle*.
8. Stein, W., Hertzberg, S., Wood, D.E. & Nusbaum, M.P. (2001) Functional compartmentalization of cotransmitter actions. *East Coast Nerve Net, Woods Hole, USA*.
9. Stein, W., Wood, D.E. & Nusbaum, M.P. (2000) Convergence and Divergence of Cotransmitter Actions. *East Coast Nerve Net, Woods Hole, USA*.
10. Sauer, A.E., Büschges, A., Stein, W., Bässler, U. (1996) Reorganization of distributed networks underlies flexibility of joint control networks. *Proceedings of the 24th Göttingen Neurobiology Conference 1996*.

Diploma thesis / Ph.D. thesis / Habilitation

1. Stein, W. (2006): Die Verarbeitung sensorischer Signale im Nervensystem (The processing of sensory signals in the nervous system). *Habilitation*, Ulm University, Germany.
2. Stein, W. (1998) Versuche zur neuronalen Basis kontextabhängiger Antworten im Femur-Tibia-Kontrollsystem der Stabheuschrecke. *Ph.D thesis*, University of Kaiserslautern, Germany.
3. Stein, W. (1995) Pharmakologisch erzeugte Änderungen im Femur-Tibia Regelkreis der Stabheuschrecke *Cuniculina impigra* und deren Einfluß auf das Verhalten. *Diploma thesis*, University of Kaiserslautern, Germany.