

Agora publications 1997-2010

Below is a list of thematic journal issues, books, and reports that have been published based on Agora related activities (courses and meetings).

Blomberg C., Liljenström H., Lindahl B.I.B., and Århem P. (Eds) "Mind and Matter: Essays from Biology, Physics and Philosophy: An Introduction", *J.theor. Biol.* 171, 1994.

Liljenström H., Århem, P. and Blomberg, C.(Eds.) "On the Role and Control of Random Events in Biological Systems", *Int.J. Neural Systems* 7(4), 1996.

Baltscheffsky, H., Blomberg C., Liljenström H., Lindahl B.I.B., and Århem P. (Eds) "On the Origin and Evolution of Life", *J.theor. Biol.* 187(4) 1997.

Århem, P., H. Liljenström, and U. Svedin (Eds.) "Matter Matters?- On the Material Basis of the Cognitive Activities of Mind", Heidelberg: Springer Verlag, 1997.

Århem, P., Blomberg, C., and Liljenström, H. (Eds.) "Disorder versus Order in Brain Functioning" London: World Scientific Publ. Co., 2000.

Århem, P., Blomberg, C., and Liljenström, H. (Eds.), "Fluctuations in Biological Systems", Proceedings of the 1999 Agora Meeting on Fluctuations in n Biological Systems, Sigtuna, 3-7 Aug, 1999. *BioSystems* Vol. 62-63, 2001.

Århem. P. & Liljenström, H. "Fluctuations in neural systems: From Subcellular to Network Levels". In: *Handbook of Biological Physics*, Vol. 4 (Eds. F. Moss & S. Gielen), pp. 83-125, 2001.

Århem, P., Liljenström, H, & Lindahl, B.I.B. "Unconsciousness -Consciousness: Tools for Exploring the Transitions". Conference report on a workshop in Sigtuna, August 2000. *J. Consc. Studies* 8, 33-35, 2001.

Århem, P., Liljenström, H, & Lindahl, B.I.B. "Evolution of Consciousness: Report of Agora Workshop in Sigtuna, Sweden, August 2001". *J. Consc. Studies* 9, 81-84, 2002.

Århem, P., Liljenström, H, & Lindahl, B.I.B., *Consciousness and Comparative Neuroanatomy: Report of Agora Workshop in Sigtuna, Sweden, August 2002.*, *J. Consc. Studies* 10:88-89, 2003

Kuhar, M. & Pögün, S. (Eds) "Modeling Mental Processes and Disorders". Proc. of an Agora workshop in Abisko, 16-20 Jan 2002. *J. Neuropsychopharmacology* 28, 2003.

Århem. P. & Liljenström, H. "Analyzing Biological Systems: The Brain as an Example", In: *Revealing Complex Structures – Challenges for Swedish Systems Analysis* (Eds. M-O-Olsson & G. Sjöstedt), Kluwer, 2004.

Liljenström, H. and Svedin, U. (Eds.) "Micro-Meso-Macro: Addressing Complex Systems Couplings", Singapore: World Scientific Publ. Co., 2005.

Liljenström, H. and Århem, P. (Eds.) "Consciousness Transitions - Phylogenetic, Ontogenetic and Physiological Aspects", Amsterdam: Elsevier, 2007.

Blomberg, C. "Physics of Life - The Physicist's Road to Biology", Amsterdam, Elsevier, 2007.

Below is a sample of publications that have been published as a direct or indirect result of Agora projects.

1996

Elinder, F., Madeja, M. & Århem, P. Surface charges of K channels: Effects of strontium on cloned channels expressed in *Xenopus* oocytes. *J. gen. Physiol.* 108: 325-332.

Lindahl, B.I.B. & Århem, P. The mental force field hypothesis: a reply to Libet. *J. theor. Biol.* 178: 225-226.

Lindahl, B.I.B. & Århem, P. The relation between the conscious mind and the brain: A reply to Beck. *J. theor. Biol.* 181: 95-96

Århem, P. Vertical information flow in the brain: On neuronal micro events and consciousness *BioSystems* 38: 191-198

Århem, P. & Johansson, S. Spontaneous signalling in small central neurons: mechanisms and roles of spike-amplitude and spike-interval fluctuations. *International Journal of Neural Systems.* 7: 369-376.

Århem, P. Axonal conduction. I: Pediatrics and Perinatology: the scientific basis (Eds. Gluckman P.D. and Heyman M.A.) Arnold, London, pp 333-336.

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Baltcheffsky, H., Blomberg, C., Liljenström, H., Lindahl, B.I.B. & Århem, P. On the origin and evolution of life: An introduction. *J. theor. Biol.* 187: 453-459.

Elinder, F. & Århem, P. Tail currents in the myelinated axon of *Xenopus laevis* suggest a two-open-state Na channel. *Biophys. J.* 73: 179-185

Liljenström, H. & Århem, P. Investigating amplifying and controlling mechanisms for random events in neural systems. *Computational Neuroscience* (Bower, J ed). Kluwer, Boston, pp 711-716,

Liljenström, H. Cognition and the Efficiency of Neural Processes. I: Matter Matters? On the Material Basis of the Cognitive Activity of Mind. (Eds. Århem, Liljenström & Århem). Springer, Heidelberg.

Århem, P. & Lindahl, B.I.B. On consciousness and spontaneous brain activity. In: Matter Matters? On the Material Basis of the Cognitive Activity of Mind. (Århem, Liljenström & Svedin, eds). Springer, Heidelberg, pp 235-253.

Århem, P. & Liljenström, H. On the coevolution of cognition and consciousness. *J. theor. Biol.* 187: 601-612.

Århem, P., Liljenström, H., & Svedin, U. Introduction I: Matter Matters? On the Material Basis of the Cognitive Activity of Mind. (Eds. Århem, Liljenström & Århem). Springer, Heidelberg.

Århem, P. Ett neurofysiologiskt perspektiv I: Själ och jaget (H. Fagerberg). Gidlunds förlag. s135-147

1998

Drets, G. & Liljenström, H. Fingerprint Sub-Classification and Singular Point Detection. *Intl. J. Pattern Recognition and Artificial Intelligence* 12: 407-422.

Elinder, F. & Århem, P. The functional surface charge density of a fast K channel in the myelinated axon of *Xenopus laevis*. *J. Membr. Biol.* 165: 175-181.

Elinder, F., Liu, Y. & Århem, P. Functional surface charge density in Shaker channels expressed in oocytes. *J. Membr. Biol.* 165: 183-189.

Liljenström, H. & Aronsson, P. Control and Amplification of Cortical Neurodynamics. Proc. of the Workshop on Virtual Intelligence - Dynamic Neural Networks, Stockholm, June 22-26, 1998.

Nilsson, J., Elinder, F. & Århem, P. Mechanisms of bupivacaine action on Na and K channels in myelinated axons of *Xenopus laevis*. Eur. J. Pharmacol. 360: 21-29.

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Drets, G. and Liljenström, H. Fingerprint Sub-classification – a Neural Network Approach. In: Intelligent Techniques on Fingerprint and Face Character Recognition (L. Jain, ed.). CRC Press.

Elinder, F., & Århem, P. Role of individual surface charges of voltage gated K channels, Biophys. J. 77: 1358-1362.

Liljenström, H. & Århem, P. On the relationship between molecular and network levels in neural systems. In: Handbook of Biological Physics, Vol. 4: Neuro-informatics, Neural Modelling, (Ed. F. Moss), Amsterdam: Elsevier

Liljenström, H. Book review on Neural Organization – Structure, Function and Dynamics by Michael A. Arbib, Peter Erdi, and Janos Szentagothai, (MIT Press, 1997), for Network: Computation in Neural Systems 10: 107-109.

Lindahl, B.I.B. Consciousness, behavioural patterns and the direction of biological evolution: implications for the mind-brain problem (manuscript).

Århem, P., Blomberg, C. & Liljenström, H. Disorder versus order in brain function - An introduction.

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Aronsson, P. and Liljenström, H. Non-synaptic modulation of cortical network dynamics. Neurocomputing, 32/33: 285-290.

Blomberg, C., Liljenström, H., and Århem, P. Disorder versus Order in Brain Functioning - An Introduction In: Disorder versus Order in Brain Functioning – Essays in Theoretical Neurophysics, London: World Scientific Publ. Co.

Liljenström H. Inter-scale interactions in cortical neural networks. Behavioral and Brain Sciences 23: 408-409.

Nilsson J., Madeja M., Århem P. Local anaesthetic binding sites of bupivacaine in K⁺-channels. Eur. Biophys. J. 346: 6A-14.

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Aronsson, P. & Liljenström, H. Increased Dynamical Order with Non-synaptic Cortical Interaction, BioSystems 63: 43-56.

Basu, S. & Liljenström, H. Role of noise characteristics in cortical state transitions, BioSystems 63: 57-69.

Blomberg, C., Elinder, F. & Århem, P. Na channel kinetics: developing models from non-stationary current fluctuations by analytic methods. BioSystems 62: 29-43.

Elinder, F., Frankenhaeuser, B. & Århem, P. Non-stationary fluctuation analysis of the Na current in myelinated nerve fibers of *Xenopus laevis*: experiments and stochastic simulations. BioSystems 62: 13-28.

Liljenström H. How (dis)ordered is our brain?, Behavioral and Brain Sciences 24(3).

Liljenström, H. Book review on Neurodynamics – An Exploration in Mesoscopic Brain Dynamics by Walter. J. Freeman, (Springer, Berlin, 2000), *Connection Science* 13:193-198.

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Repsilber, D., Liljenström, H., and Andersson, S. Reverse Engineering of Regulatory Networks: Simulation Studies on a Genetic Algorithm Approach for Ranking Hypotheses. *BioSystems* 66:31-41.

Liljenström, H., Neural Stability and Flexibility - A Computational Approach, *J. Neuropsychopharmacology* 28: S64-S73.

Liljenström, H. Regulating Cortical Neurodynamics for Past, Present and Future, 5th International Conference on Computing Anticipatory Systems 2001, (CASYS'01), ed. D.M. Dubois, AIP Conference Proceedings Volume 627, Issue 1, pp. 375-386, American Institute of Physics, New York.

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Liljenström, H. "Neural Stability and Flexibility - A Computational Approach", *J. Neuropsychopharmacology* 28: S64-S73

Liljenström, H., "Can intrinsic fluctuations increase efficiency in neural information processing?", Conference on Unsolved Problems of Noise, UPoN'02, Bethesda, USA, Sep 3-6, 2002. AIP Conference Proceedings 665:216-226

Liljenström, H., "A Computational Approach to the Stability-Flexibility Dilemma of Neural Systems", Shanghai International Symposium on Nonlinear Science & Applications , NSA'03, 9-13 Nov 2003.

2004

Liljenström, H. and Haldnes, G. "Noise in Neural Networks – In Terms of Relations", *Fluctuation and Noise Letters* 4: L97-L106 (special issue, eds. P. Hanggi, P. Jung, A. Neiman and L. Schimanski-Geier).

Gu, Y., Haldnes, G., Liljenstrom, H., and Wahlund, B., "A Cortical Network Model for Clinical EEG Data Analysis", *Neurocomputing* 58-60:1187-1196

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Århem, P., Braun, H., Huber, M. and Liljenström, H. "Non-Linear State Transitions in Neural Systems: From Ion Channels to Networks", In: *Micro – Meso – Macro: Addressing Complex Systems Couplings*, (H. Liljenström & U. Svedin, eds.) World Scientific Publ. Co., pp. 37-72.

Liljenström, H. and Svedin, U., "System Features, Dynamics, and Resilience – Some Introductory Remarks", In: *Micro – Meso – Macro: Addressing Complex Systems Couplings*, (H. Liljenström & U. Svedin, eds.) Singapore: World Scientific Publ. Co. pp. 1-16.

Svedin, U. and Liljenström, H. "Bridges, connections and interfaces - Reflections over the Meso theme", In: *Micro – Meso – Macro: Addressing Complex Systems Couplings*, (H. Liljenström & U. Svedin, eds.) Singapore: World Scientific Publ. Co. pp. 315-327.

Gu, Y., Wahlund, B., Liljenström, H., von Rosen, D. and Liang, H. "Network Model for Clinical EEG Data Analysis", *Neurocomputing* 58-60:1187-1196

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Gu, Y., Haldnes, G., Liljenström, H., Liang, H., von Rosen, D., and Wahlund, B. "Modelling ECT Effects by Connectivity Changes in Cortical Neural Networks", *Neurocomputing* 69:1341-1347

Gu, Y., Liljenström, H., Anton, S., and Rospars, J.-P. "Multi-scale Neurodynamical Odour Coding and Its Modulation", International Conference on Computation and Neural Systems, CNS*06, Edinburgh, July 17-19 2006.

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Århem, P. and Blomberg, C. "Ion channel density and threshold dynamics of repetitive firing in a cortical neuron model", *Biosystems* 89:117-125

Gu, Y. and Liljenström, H. " Modeling Efficiency in Insect Olfactory Information Processing", *BioSystems* 89:236-243

Halnes, G., Liljenström, H. and Århem, P. " Network dynamics dependence on connectivity and ion channel density", *BioSystems* 89:126-134

Halnes, G., Fath, B. & Liljenström, H. "The modified niche model: Including detritus in simple structural food web models". *Ecological Modelling* 208:9-16.

Liljenström, H. & Århem, P. (Eds.) " *Consciousness Transitions – Phylogenetic, Ontogenetic and Physiological Aspects*". Amsterdam, Elsevier, 2007.

2009

Milka Culic, M., Gjoneska, B., Hinrikus, H., Jändel, M., Klonowski, W., Liljenström, H., Pop-Jordanova, N., Psatta, D., von Rosen, D. and Björn Wahlund, "Signatures of Depression in Non-Stationary Biometric Time Series". *Computational Intelligence and Neuroscience* Vol. 2009:1-7.

Wahlund, B., Piazza, P., von Rosen, D., Liberg, B. and Liljenström, H. "Seizure (Ictal)EEG Characteristics in Subgroups of Depressive Disorder in Patients Receiving Electroconvulsive Therapy (ECT)A Preliminary Study andMultivariate Approach", *Computational Intelligence and Neuroscience*, Vol. 2009, Article ID 965209.

Popular science and cultural literature (a sample of publications, mostly in Swedish)

Blomberg, C. "Tiden och tidens riktning: Varifrån kommer den egentligen?" *Elementa*, 1996.

Blomberg, C. "Tvåhundraårsminnet av Sadi Carnots födelse".*Elementa* 1996.

Liljenström, H. "Roboten som vet att den finns - en utopi?" *Forskning och Framsteg* okt 1996.

Blomberg, C., Hedström, I., Karlsson, K.G. "Från Big Bang till Livet" *Rabén Prisma*, 1997.

Blomberg, C. "Vägen till Livet". I *Livets ursprung*, NFRs årsbok1997.

Århem,P. "Tankar är mer an kemi och elektricitet". *DN* 20 juli, 1997

Århem,P. "Om intellektuella modetrender". *Medicinsk vetenskap vid Karolinska Institutet* Nr 2 26-27, 1997.

Århem P. and Liljenström H., "Hjärnan och medvetandet". *Stockholms Akademiska Forums utställning om Kropp och Själ*, 1998.

Blomberg, C. "Antropiska principen - Kan naturvetenskapen förklara Gud?" *Signum*,nr 1, 1999.

Blomberg, C. och Sjöström, J. "Kalorik - en fruktbar hypotes i värmelärans historiska utveckling". *ELEMENTA*, 1999.

Århem,P. "Thomas av Aquino och naturvetenskapen". *Signum*, nr 8, 1999.

Århem, P. "Att förstå medvetandet". Signum 1, 60-62, 2000.

Århem, P. "Jonkanalforskare får Laskerpriset". Läkartidningen 97, 3388-3390, 2000.

Århem, P. "Hur Homo blev sapiens". Signum, 2001.

Århem, P. "Medvetande och hjärna – det centrala problemet". I Hjärnan och medvetandet (Red. H. Lagercrantz). Nya Doxa, 2001.

Liljenström, H., "Spelar Gud tärning?", Samspel 2:32 (in Swedish), 2003.

Liljenström, H., "Människan som del av Naturen", Miljöforskning, nr 4, 2007.

Liljenström, H. & Linderman, A. (Eds.). "*Bortom tro och vetande - tankar från en dialog*", Stockholm, Carlssons Bokförlag, 2010.

Ernberg, I., Blomberg, C., Jörsäter, S., Wennborg, Århem, P., Malmnäs, P.-E., Aurell, E. & Cöster, J. "*Vad är liv i liv i kosmos, i cellen, i människan?*", Stockholm, Karolinska Institutet University Press, 2010

Popular science oral presentations (in Swedish)

Blomberg, C. Tid, vad är det? (presentation vid Göteborgs vetenskapsfestival 1998)

Blomberg, C. Livets ursprung (radio, 16 maj 1999)

Liljenström, H. Om slumpen (Filosofiska Rummet, P1, jan 2002)
