

## CCSS-relevant Publications 2009

- D. Helbing and W. Yu (2009) *The outbreak of cooperation among success-driven individuals under noisy conditions*. Proceedings of the National Academy of Sciences USA (PNAS) 106 (8), 3680-3685.
- D. Helbing, Y. Wenjian and H. Rauhut (2009) *Self-organization and emergence in social systems: Modeling the coevolution of social environments and cooperative behavior*. SFI Working Paper #09-07-026.
- D. Helbing (2009) *Managing complexity in socio-economic systems*. European Review 17(2), 423-438
- J. R. G. Dyer, A. Johansson, D. Helbing, I. D. Couzin and J. Krause (2009) *Leadership, consensus decision making and collective behaviour in humans*. Philosophical Transactions of the Royal Society B 364, 781-789.
- L. Buzna, L. Issacharoff and D. Helbing (2009) *The evolution of the topology of high-voltage*. Int.J.Critical Infrastructures, 5(1), 72-85.
- D. Nilsson and A. Johansson (2009) *Social influence during the initial phase of a fire evacuation-Analysis of evacuation experiments in a cinema theatre*. Fire Safety Journal, 44 (1), 71-79.
- D. Helbing, J. Jost and H. Kantz eds. (2008) *Nonlinear physics everywhere: From molecules to cities*. The European Physical Journal B 63(3), 283-420.
- H. Rauhut (2009) *Higher punishment, less control? Experimental evidence on the Inspection game*. Rationality & Society, 21 (3)
- D. Helbing, C. Kühnert, S. Lämmer, A. Johansson, B. Gehlsen, H. Ammoser and G.B. West (2009) *Power Laws in Urban Supply Networks, Social Systems, and Dense Pedestrian Crowds*. Pages: 433-450 in: D. Lane, D. Pumain, S.E. van der Leeuw and G.B. West (eds.) Methodos Series: Methodological Prospects in the Social Sciences - Complexity Perspectives in Innovation and Social Change
- D. Helbing (2009) *Pattern formation, social forces, and diffusion instability in games with success-driven motion* European Physical Journal B 67, 345-356.
- D. Helbing and A. Mazlounian (2009) *Operation regimes and slower-is-faster effect in the control of traffic intersections*. European Physical Journal B, 70(2), 257-274.
- D. Helbing, M. Treiber, A. Kesting and M. Schönhof (2009) *Theoretical vs. empirical classification and prediction of congested traffic states*. European Physical Journal B 69(4), 583-598.
- R. Sipahi, S. Lämmer, D. Helbing and S.-I. Niculescu (2009) *On stability problems of supply networks constrained with transport delay*. *Journal of Dynamic Systems, Measurement, and Control* 131, 021005-1
- H. Kato and K.W. Axhausen (2009) *Value of travel time savings incorporating the value of access*. Working paper, 548, IVT, ETH Zurich, Zurich.
- M. van Eggermond and K.W. Axhausen (2009) *Using discrete choice models to support strategic decision-making of air transportation service providers*. Working paper, 546, IVT, ETH Zurich.
- Killer, V. and K.W. Axhausen (2009) *Mapping overlapping commuting areas, Arbeitsberichte Verkehrs- und Raumplanung*, 555, Institute for Transport Planning and Systems (IVT), ETH Zurich.
- Sharma, S. and K.W. Axhausen (2009) *Design diagrams for road infrastructure elements: High capacity roads*. Arbeitsberichte Verkehrs- und Raumplanung, 559, Institute for Transport Planning and Systems (IVT), ETH Zurich.
- Frei, A. and K.W. Axhausen (2009) *Report about results: user requirements and indications about demand volumes, KITE - a knowledge base for intermodal passenger travel in Europe*, Deliverable 8, IVT, ETH Zürich.
- Waraich, R., D. Charypar, M. Balmer and K.W. Axhausen (2009) *Performance improvements for large scale traffic simulation in MATSim*, paper presented at the 9th Swiss Transport Research Conference, Ascona, September 2009.
- Schüssler, N. and K.W. Axhausen (2009) *Map-matching of GPS traces on high-resolution navigation networks using the Multiple Hypothesis Technique (MHT)*, Arbeitsberichte Verkehrs- und Raumplanung, 568, IVT, ETH Zürich.
- Schönfelder, S. and K.W. Axhausen (2009) *Travel as a function of (life) projects*, paper presented at the European Transport Conference, Leiden, October 2009.
- Killer, V. and K.W. Axhausen (2009) *The Spatial and Temporal Change of Commuting Regions*, Transportation Research Board.
- Kowald, M., A. Frei, J.K. Hackney, J. Illenberger and K.W. Axhausen (2009) *The influence of social contacts on leisure travel: A snowball sample of personal networks*, paper presented at the 12th International Conference on Travel Behaviour Research, Jaipur, December 2009.

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- Kawasaki, T. and Axhausen, K.W. (2009) **Choice set generation from GPS data set for grocery shopping location choice modelling in canton Zurich: The comparison to Swiss Microcensus 2005**, Arbeitsberichte Verkehrs- und Raumplanung, 595, IVT, ETH Zürich..
- Joubert, J.W. and K.W. Axhausen (2009) **On the social networking of commercial vehicles**, Working paper, 601, IVT, ETH Zurich.
- N.I.N. Elurui, C.R. Sener, R. Bhat, R. Pendyala and K.W. Axhausen (2009) **Understanding residential mobility: A joint model of the reason for residential relocation and stay duration**. Paper presented at the 88th Annual Meeting of the Transportation Research Board, Washington, D.C., January 2009.
- H. Kato, K.W. Axhausen and M. Imai (2008) **Value of travel time savings of urban private travel: comparison of Tokyo and Karlsruhe**. Paper presented at the 86th Annual Meeting of the Transportation Research Board, Washington, D.C., January 2008. **ith information overload through Trust-based networks**. In: Managing Complexity: Insights, concepts, Applications (Ed. D. Helbing) Springer, Berlin, 273-300.
- V. Eguíluz, C. Tessone and J. Claudio (2009) **Critical behavior in an evolutionary model of altruistic behavior with social structure**. Advances in Complex Systems, 12 (2), 221-232.
- F. Schweitzer (2009) **Multi-agent approach to the self-organization of networks**. In: Understanding and Managing Complex Agent-Based Dynamical Networks (Eds. F. Reed-Tsochas, N. F. Johnson, J. Efstathiou), Singapore: World Scientific. (forthcoming)
- Glattfelder, James B., Battiston, Stefano (2009) **Backbone of complex networks of corporations: The flow of control** Physical Review E /80, 036104.
- Geipel, Markus Michael, Schweitzer, Frank (2009) **Software Change Dynamics: Empirical Evidence from 35 Java Projects** Proceedings of the European Software Engineering Conference 2009, ESEC/FSE pp. 269-272
- Schweitzer, Frank, Fagiolo, Giorgio, Sornette, Didier, Vega-Redondo, Fernando, Vespignani, Alessandro, White, Douglas R. (2009) **Economic Networks: The New Challenges**, Science, vol. 325, pp. 422-425
- L. Lin, Ren. R.E. and D. Sornette (2009) **A Consistent Model of "Explosive" Financial Bubbles With Mean-Reversing Residuals**, Quantitative Finance
- D. Sornette, R. Woodard and W.-X. Zhou (2009) **The 2006-2008 Oil Bubble: evidence of speculation and prediction**, Physica A 388, 1571-1576.
- V.I. Yukalov and D. Sornette (2009) **Processing Information in Quantum Decision Theory**, Entropy 11, 1073-1120.
- V.I. Yukalov and D. Sornette (2009) **Physics of risk and uncertainty in quantum decision making**, Eur. Phys. J. B 71, 533-548.
- D. Sornette and S. Utkin (2009) **Limits of Declustering Methods for Disentangling Exogenous from Endogenous Events in Time Series with Foreshocks, Main shocks and Aftershocks**, Physical Review E 79, 061110.
- A. Saichev and D. Sornette (2009) **Generation-by-Generation Dissection of the Response Function in Long memory Epidemic Processes**, European Physical Journal B.
- D. Sornette and M.J. Werner (2009) **Statistical physics approaches to seismicity**. Encyclopedia of Complexity and Systems Science, Springer.
- A. Saichev and D. Sornette (2009) **Effects of Diversity and Procrastination in Priority Queuing Theory: the Different Power Law Regimes**, Physical Review E.
- V.I. Yukalov, E.P. Yukalova and D. Sornette (2009) **Punctuated Evolution due to Delayed Carrying Capacity**, Physica D 238, 1752-1767.
- D. Sornette, Dragon-Kings (2009) **Black Swans and the Prediction of Crises**, in press in the International Journal of Terraspace Science and Engineering.
- D. Sornette and S. Utkin (2009) **Limits of Declustering Methods for Disentangling Exogenous from Endogenous Events in Time Series with Foreshocks, Main shocks and Aftershocks**, Physical Review E 79, 061110.
- V.F. Pisarenko, D. Sornette and M.V. Rodki (2009) **Distribution of Maximum Earthquake Magnitudes in Future Time Intervals, Application to the Seismicity of Japan (1923-2007)**, submitted to Earth, Planets and Space (EPS)
- M.J. Werner, K. Ide and D. Sornette (2009) **Earthquake Forecasting Based on Data Assimilation: Sequential Monte Carlo Methods for Renewal Processes**, J. Geophys. Res.
- J. Faillettaz, M. Funk and D. Sornette (2009) **Icequakes as precursors of ice avalanches**, Geophysical Research Letters.)



## CCSS-relevant Publications 2009

- Cederman, L.-E. and Gleditsch, K.S. (2009). *Introduction to Special Issue on "Disaggregating Civil War"* Journal of Conflict Resolution 53:487-495
- Cederman, L.-E., Buhaug H. and Rød, J.K. (2009). *Ethno-Nationalist Dyads: A GIS-Based Analysis*. Journal of Conflict Resolution 53: 496-525
- Vorrath, J. and Krebs, L.F. (2009). *Democratisation and Conflict in Ethnically Divided Societies*. Living Reviews in Democracy
- Weidmann, N. B. and Cederman, L.-E. (2009) *GeoContest: Modeling Strategic Competition in Geopolitical Systems*. Social Science Computer Review 26
- Wimmer, A., Cederman, L.-E., and Min, B. (2009). *Ethnic Politics and Armed Conflict: A Configurational Analysis*. American Sociological Review 74(2):316-337
- A.A. Moreira, J.S. Andrade Jr., H.J. Herrmann, J.O. Indekeu (2009) *How to make a fragile network robust and vice versa*. Phys. Rev. Lett. 102, 018701.
- R.F.S. Andrade, J.S. Andrade Jr., H.J. Herrmann, (2009) *Ising model on the Apollonian network with node dependent interactions*. Physical Review. E, 79(3) 036105.
- C. M. Schneider, A. A. Moreira. J.S. Andrade Jr., S. Havlin, H.J. Herrmann (2009) *Enhancing Robustness to Malicious Attack of Complex Networks*. (forthcoming).
- E. Fehr, J.S. Andrade JR., S.D. Da Cunha, L.R. Da Silva, H.J. Herrmann, D. Kadau, C.F. Moukarzell, E.A. Oliveira (2009), *New efficient method to calculate watersheds*, JSTAT P09007.
- J.S. Andrade, E.A. Oliveira, A.A. Moreira H.J. Herrmann (2009) *Fracturing the optimal paths*, Phys.Rev.Lett. 103, 225503.
- K. Kovacs, I. Reiweger, H.J. Herrmann, J. Schweizer (2009) *Analytic study of snow failure using a fiber bundle model*, submitted.

## Selected CCSS Response in the Media 2009

- **Meltdown modelling**  
by Mark Buchanan **Nature** 460, 680-682, (August 5, 2009)
- **Ourselves and Our Interactions: The Ultimate Physics Problem? (CCSS Conference)**  
by Adrian Cho, **Science** (July 24, 2009)
- **Wissensbeschleuniger in Sachen Risiko**  
by Martina Märki, **ETH Life** (July 2, 2009)
- **Die Pandemie am Computer**  
by Katharina Bochsler, **DRS 2** (June 13, 2009)
- **Scientists seek to map extreme events**  
by Vincent Landon, **WRS (World Radio Switzerland)** (June, 2009)
- **Naturwissenschaftliche Rezepte gegen sozioökonomische Krisen**  
by Christian Speicher, **NZZ online** (June 24, 2009)
- **Kooperation durch Mobilität**  
by Markus Christen, **NZZ** (March 18, 2009)
- **Networks reveal concentrated ownership of corporations**  
by Patrick Barry, **Science** (February 13, 2009)
- **How officials will control the crowds at Obama's inauguration**  
by Philip Taylor, **Popular Mechanics** (January 20, 2009)