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Germany

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PERSONAL INFORMATION  
BORN January 16, 1976 in Bremen, Germany  
CITIZENSHIP German  
FAMILY STATUS not married, in partnership, 1 daughter (born Oct 9, 2006)

EDUCATION **Universität Bremen**, Germany

*Doktor rer. nat.*, Mathematics, March 2007, advised by [Ulrich Krause](#) (Mathematics) and [Rainer Hegselmann](#) (Philosophy, Simulation), Grade: *summa cum laude*  
*Diploma*, Mathematics, Feb 2003, Grade: *very good* (1.2)

**Schulzentrum an der Walliser Straße**, Bremen, Germany

*Abitur* (university-entrance diploma), June 1995, Major courses: math, history  
Grade: *very good* (1.3), best of the year

ACADEMIC CAREER **Carl von Ossietzky University of Oldenburg**  
**Center for Social Science Methodolgy**, Germany

**Jan 2010 – present**

*Researcher*

**ETH Zurich**, **Chair of Systems Design**, Switzerland

**Apr 2007 – present**

*Contract work*

Nov 2009 – present

*Postdoctoral researcher*

Apr 2007 – Oct 2009

Project [CyberEmotions](#)

Feb 2009 – present

Europeans Commissions 7th Framework Programme, Large scale integrating project (9 partners),  
Workpackage: Sociophysics and agent-based models of emotion dynamics in cyberspace

Proposal writing [CyberEmotions](#)

Dec 2008 – Jan 2009

Project [COST P10 Physics of Risk](#)

Apr 2007 – Nov 2008

Workpackage [Failure risk propagation in economic and supply networks](#)

**Universität Bremen**, Germany

**Apr 1998 – Mar 2007**

*Doctoral Student* with independent stipend

Jan 2004 – Mar 2007

*Tutor*, Mathematics for Economists

Apr 2000 – Mar 2001

*Undergraduate*, Mathematics, Philosophy, 8 terms

Apr 1998 – Mar 2003

**Carl von Ossietzky Universität Oldenburg**, Germany

**Oct 1996 – Apr 1997**

*Undergraduate*, Mathematics, Computer Science, 1 term

SHORT TERM ACADEMIC ACTIVITIES *Participant* Brazil Project of the Friedrich Ebert Foundation, Young Policy Dialog  
Frankfurt, Berlin, São Paulo, Brasilia, Rio de Janeiro during 2005

*Researcher* Max-Planck Institut Physik komplexer Systems, Dresden, Germany Aug – Sep 2004  
EXYSTENCE Thematic Institute [“From Many-Particle Physics to Multi-Agent Systems”](#)

*Participant* 1st Winterschool for the Physics of Socio-Economic Systems Feb 2004  
Universität Konstanz, Germany

AWARDS	<p><i>Scholarship for Doctoral Studies</i>, Friedrich-Ebert-Stiftung, Germany Jan 2004 – Dec 2006</p> <p><i>Prize for Applied Research in Complexity Science</i> (3000 EUR), Best Poster, Workshop “<a href="#">Potentials of Complexity Science for Business, Governments, and the Media 2006</a>”, Aug 3–5, 2006, Budapest, Hungary</p> <p><i>Best student paper</i> (700 EUR) “2nd International Meeting: Connectionist Approaches in Economics and Management - ASCEG 2005”, 17–18 Nov, 2005, Aix-en-Provence, France, 2nd prize</p>
SCIENTIFIC COMMUNITY SERVICE	<p><i>Referee</i> IEEE Transactions on Automatic Control (1), Journal of Artificial Societies and Social Simulation (1), European Journal of Economic and Social Systems (3), Physica A (2), European Physical Journal B (1), Advances in Complex Systems (1), Journal of Economic Interaction and Coordination (1)</p> <p><i>Delegate</i> Management Meeting “CyberEmotions”, Bremen , July 2009, for ETH Zürich</p> <p><i>Assistant</i> Administration grant 231323 “CyberEmotions” of FP7 Commission of the EU, for ETH Zürich</p> <p><i>Delegate</i> Negotiation Meeting “CyberEmotions” in pre-submission phase, Brussels, Nov 2008, for ETH Zürich</p> <p><i>Assistant</i> Administration grant C05.0148 “Physics of Risk” of Swiss Secretariat for Education and Research (5 Swiss partners), for ETH Zürich</p> <p><i>Assistant</i> Local organization of International Workshop “<a href="#">The Physics Approach to Risk:: Agent-based Models and Networks</a>”, Oct 27–29, 2008, Zürich</p> <p><i>Delegate</i> COST P10 “Physics of Risk” Management Committee Meeting at 4th Annual Meeting, Sep 21–23, 2007, Palermo, Italy</p> <p><i>Organisation</i> Workshop <a href="#">Political Participation in Brazil and Germany</a>, Centre Marc Bloch, Berlin, Germany, Dec 2, 2005</p>
MEMBERSHIP	Deutsche Mathematiker-Vereinigung (DMV), Wikimedia Deutschland e.V.
TEACHING	<p><b>Universität Bremen</b>, Germany</p> <p><i>Co-Organiser</i> Seminar Positive Dynamische Systeme (Mathematik) WiSe 2006/2007, VAK 03-418</p> <p><i>Co-Organiser</i> Seminar Positive Dynamische Systeme (Mathematik) SoSe 2006, VAK 03-340</p> <p><i>Co-Organiser</i> Seminar Positive Dynamische Systeme (Mathematik) WiSe 2005/2006, VAK 03-342</p> <p><i>Co-Organiser</i> Seminar Positive Dynamische Systeme (Mathematik) SoSe 2005, VAK 03-330</p> <p><i>Tutor</i> Mathematik (Wirtschaftswissenschaften) WiSe 2000/2001, VAK 07-107</p> <p><i>Tutor</i> Mathematik II (Wirtschaftswissenschaften) SoSe 2000, VAK 07-108</p>
LANGUAGES	German (native), English (very good written and spoken), Matlab (expert), R (basic), L <sup>A</sup> T <sub>E</sub> X including beamer,tikz (very good), MySQL (good), HTML (good)
COMPUTER SKILLS	setup of computer simulations (matlab, R), program experiments (z-Tree), data analysis (matlab, R, MySQL), webdesign, all office software, imaging software on pixel and vector basis (e.g. PhotoShop, Illustrator), desktop publishing software (e.g. InDesign), operating systems: Linux, Windows, Mac
RESEARCH FIELDS	<p><b>Research Topics:</b> processes of opinion formation, decision processes, aggregation of the wisdom of crowds, rating systems, voting systems, consensus algorithms, swarms, cascades on networks, systemic risk</p> <p><b>Tools:</b> modeling and simulation, mathematical analysis of dynamics (fixed points, stability, attractiveness), large scale statistical data analysis, experiments</p> <p><b>Mathematical fields:</b> nonnegative matrices, inhomogeneous Markov chains, repeated application of means, positive dynamical systems, multiplicative and additive stochastic processes</p> <p><b>General scientific interests:</b> complex systems, network theory, game theory, mathematics and politics, socio- and econo-physics, philosophy of modelling</p>

## PAPERS

**In Preparation**

1. Jan Lorenz, Heiko Rauhut, Frank Schweitzer, and Dirk Helbing. Social influence generates overconfidence in the wisdom of crowds. 2009. in preparation

**Preprints**

2. Heiko Rauhut and Jan Lorenz. The wisdom of crowds in one mind: Experimental evidence on repeatedly asking oneself instead of others. 2009. Preprint
3. Jae Kyun Shin and Jan Lorenz. Tipping diffusivity in information accumulation systems: More links, less consensus. 2009. [arXiv:0909.1252](#)

**Journal Publications**

1. Jan Lorenz and Dirk A. Lorenz. On conditions for convergence to consensus. 2008. [arXiv:0803.2211](#)
2. Jan Lorenz, Stefano Battiston, and Frank Schweitzer. Systemic risk in a unifying framework for cascading processes on networks. *European Physical Journal B*, 2009. accepted. [arXiv:0907.5325](#)
3. Jan Lorenz. Universality of movie rating distributions. *European Physical Journal B*, 71:251–258, 2009. [arXiv:0806.2305](#)
4. Jan Lorenz. Heterogeneous bounds of confidence: Meet, Discuss and Find Consensus! *Complexity*, 2009. accepted. [arXiv:0801.1399](#)
5. Diemo Urbig, Jan Lorenz, and Heiko Herzberg. Opinion dynamics: The effect of the number of peers met at once. *Journal of Artificial Societies and Social Simulation*, 11(2):4, 2008
6. Jan Lorenz and Stefano Battiston. Systemic risk in a network fragility model analyzed with probability density evolution of persistent random walks. *Networks and Heterogeneous Media (NHM)*, 3(2):185–200, 2008. [arXiv:0711.1784](#)
7. Jan Lorenz. Continuous Opinion Dynamics under bounded confidence: A Survey. *Int. Journal of Modern Physics C*, 18(12):1819–1838, 2007. [arXiv:0707.1762](#)
8. Jan Lorenz and Diemo Urbig. About the Power to Enforce and Prevent Consensus by Manipulating Communication Rules. *Advances in Complex Systems*, 10(2):251, 2007. [arXiv:0708.3244](#)
9. Jan Lorenz. Consensus strikes back in the Hegselmann-Krause model of continuous opinion dynamics under bounded confidence. *Journal of Artificial Societies and Social Simulation*, 9(1):8, 2006
10. Jan Lorenz. Continuous Opinion Dynamics of Multidimensional Allocation Problems under Bounded Confidence. More dimensions lead to better chances for consensus. *European Journal of Economic and Social Systems*, 19(2):213–227, 2006. [arXiv:0708.2923](#)
11. Jan Lorenz. A stabilization theorem for dynamics of continuous opinions. *Physica A: Statistical Mechanics and its Applications*, 355(1):217–223, 2005. [arXiv:0708.2981](#)

**Publications in Books and Conference Proceedings**

11. Jan Lorenz. Fostering Consensus in Multidimensional Continuous Opinion Dynamics under bounded Confidence. In Dirk Helbing, editor, *Managing Complexity: Insights, Concepts, Applications*, pages 321–334. Springer, 2008. [arXiv:0708.3172](#)
12. Jan Lorenz. Fixed points in models of continuous opinion dynamics under bounded confidence. In A. Ruffing, A. Suhrer, and J. Suhrer, editors, *Communications of the Laufen Colloquium on Science 2007*. Shaker Publishing, 2007. [arXiv:0806.1587](#)
13. Jan Lorenz. Convergence of Products of Stochastic Matrices with Positive Diagonals and the Opinion Dynamics Background. In *Lecture Notes in Computer Science: Positive Systems*, volume 341, pages 209–216. Springer, 2006. [arXiv:0708.3177](#)
14. Jan Lorenz. Continuous opinion dynamics: Insights through interactive Markov chains. In *Proceedings of IASTED Conference Modelling, Simulation and Optimization MSO, Oranjestaad, Aruba*, 2005. [arXiv:0708.3293](#)

**Conference, Policy and Business Papers**

15. Jan Lorenz and Frederico Menino. Designing Participatory Budgeting: Mathematics of opinion dynamics and aggregation. Technical report, 2005
16. Hubert Ramke, Stefan Mues, and Jan Lorenz. Vom Resteverkauf zum Verwertungsmanagement. *Der Versandhausberater*, 2004
17. Jan Lorenz. Opinion Dynamics with Heterogeneous Bounds of Confidence for the Agents. In *Conference "WEHIA 2003", Institute for World Economics, Kiel, Germany, May 29-31, 2003*
18. Jan Lorenz. Multidimensional Opinion Dynamics when Confidence Changes. In *Economic Complexity 2003 Aix-en-Provence, France, May 8-12, 2003*

**Theses**

19. Jan Lorenz. *Repeated Averaging and Bounded Confidence-Modeling, Analysis and Simulation of Continuous Opinion Dynamics*. PhD thesis, Universität Bremen, 2007
20. Jan Lorenz. *Mehrdimensionale Meinungsdynamik bei wechselndem Vertrauen*. Master's thesis, Universität Bremen, 2003

#### POSTERS

1. [Universality in Continuous Opinion Dynamics: Empirical studies of movie rating distributions](#), COST MP0801 “Physics of Conflicts and Competition” Annual Meeting, Rome, Italy, 2009
2. [Fostering Consensus in Multidimensional Continuous Opinion Dynamics under Bounded Confidence](#), Potentials for Complexity Science in Business, Government and the Media, Collegium Budapest, Hungary, 2006

#### SELECTED TALKS

1. [Continuous Opinion Dynamics: Heterogeneous Bounds of Confidence, Movie Ratings, Wisdom of the Crowd; Results from Simulation, Online Data Analysis, and the Lab](#) (invited), Sociology Seminar, University of Groningen, Netherlands, 2010
2. [Mathematical ingenuity traced in the academic genealogy of mathematicians](#), Workshop “Modelling science – Understanding, forecasting, and communicating the science system”, Amsterdam, Netherlands, 2009
3. [Continuous Opinion Dynamics under Bounded Confidence: A model to explain the formation of Parties?](#) (invited), Seminar Zentrum für Methoden der Sozialwissenschaften, Universität Oldenburg, Germany, 2009
4. [Growth in coupled multiplicative stochastic processes](#), International Workshop “The Physics Approach to Risk: Agent-based Models and Networks”, Zurich, Switzerland, 2008
5. [Continuous Opinion Dynamics](#), International Workshop Sociophysics: Status and Perspectives, ISI Foundation, Torino, Italy, 2008
6. [Fostering Consensus in Continuous Opinion Dynamics under Bounded Confidence](#), Seminar “Modeling Socio-Economic Systems and Crisis”, ETH Zurich, Switzerland, 2008
7. [Is there an Optimal Level of Globalization? Stochastic Fragility Dynamics with Trend Reinforcing](#), COST P10 “Physics of Risk” Annual Meeting, Palermo, Italy, 2007
8. [Continuous Opinion Dynamics under Bounded Confidence](#) (invited), Seminar “Large Graphs and Networks”, UCL, Louvain la Neuve, Belgium, 2007
9. [Threshold models of Continuous Opinion Dynamics: Clustering, Drifting, Convergence](#) (invited), Seminar “Interdisciplinary Physics”, IFISC, Palma de Mallorca, Spain, 2007
10. [Difference Equations in Continuous Opinion Dynamics under Bounded Confidence](#), Progress on Difference Equations, Laufen/Salzburg, Germany/Austria, 2007
11. [Wiederholtes Mitteln bei beschränktem Vertrauen: Modellierung, Analyse und Simulation von kontinuierlicher Meinungsdynamik](#), Vortrag zum Promotionskolloquium, Bremen, Germany, 2007
12. [Wie man das Erreichen eine Konsenses fördert](#) (invited), Seminar “Effizienz dezentraler Strukturen” Universität Bayreuth, Germany, 2006
13. [Convergence of products of stochastic matrices with positive diagonals and the opinion dynamics background](#), POSTA Positive System: Theory and Application, Grenoble, France, 2006
14. [Fostering Consensus](#), Potentials for Complexity Science in Business, Government and the Media, Collegium Budapest, Hungary, 2006
15. [About the power to enforce and prevent consensus](#), DPG Spring Meeting, Arbeitskreis Physik sozio-ökonomischer Systeme, Dresden, Germany, 2006
16. [Continuous opinion dynamics of multidimensional allocation problems under bounded confidence](#), 12th International Meeting: Connectionist Approaches in Economics and Management - ASCEG, Aix-en-Provence, France, 2005
17. [Continuous opinion dynamics: Insights through Interactive Markov Chains](#), IASTED Conference: Modelling, Simulation, and Optimization, Aruba, 2005

#### PUBLIC RESPONSE

*TV documentary* [Schwärme: Die Intelligenz der Massen](#), arte 25.9.2009, 19:00; shows an experiment on opinion dynamics and the wisdom of crowds (designed and conducted by Jan Lorenz, Heiko Rauhut, Dirk Helbing, Frank Schweitzer)

*Science Blogs*, [Weisheit der Bremer siegt über Experten](#), 27.8.2009

*Show*, pi x Deutschland - Die Abschlussveranstaltung im [Jahr der Mathematik](#), EXPO XXI, Kln, Germany, 11. December 2008; acted as expert for “Mathematik und Schwarmintelligenz”

*Show*, [KnickKnack Schwärmen für das ViertelFest](#) - die Intelligenz der Knackinsekten, ein mathematisches Massenselbstorganisationsexperiment auf dem ViertelFest, Bremen, Germany, 22.-24. August 2008; acted as advisor and expert on stage

*Press release* [Countdown für Bremer Großversuch zu Schwarmintelligenz: Wie viel Hering steckt im Menschen?](#), Nr. 250, 15.8.2008, Universität Bremen

