

CV of Dr. D. Battogtokh

Name Dorjsuren Battogtokh (M)

Date of Birth 26 Aug 1963

Nationality Mongolia

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Marital Status Married, Son(19), Daughter(10), Daughter(1)

Visa status H1B visa extendable until May 2007

Languages English(fluent), Russian(fluent), German(fair),
Japanese(fair), Mongolian(native)

Education

1982-1988 Department of Physics, Lomonosov Moscow State University,
Diploma Thesis "Cellular Automata Model for Excitable Media". Advisor Prof.
A. S. Mikhailov

1992-1995 Department of Physics, Lomonosov Moscow State University,
Ph.D. Thesis, "Turbulence and Dissipative Structures in Oscillatory Media with
Global Coupling". Advisor Prof. A. S. Mikhailov

Employment

1988-1990, Institute for Biotechnology, Mongolian Academy of Sciences,
Ulaanbaatar, research associate

1990-1992, Institute for Mathematics, Mongolian Academy of Sciences, Ulaan-
baatar, research associate

1994-1996, Department of Physical Chemistry, Fritz Haber Institute of the
Max Planck Society, Berlin, Germany, visiting scientist (Volkswagen Foundation
Fellow and a research Fellow of Max Planck Society)

1997-1999, Department of Physics, Graduate School of Science, Kyoto Uni-
versity, Kyoto, Japan, Postdoctoral Fellow of Japan Society for Promotion of
Sciences

1999- 31 March 2000, Department of Physics and Astronomy, Louisiana
State University, Baton Rouge, 70803 Louisiana, Postdoctoral research associate

Apr. 2000-Nov. 2000, Physics and Technology Institute, Mongolian Academy
of Sciences, Ulaanbaatar 51, Mongolia, Head of Biophysics and Spectroscopy
Department

2000-2002, Center for Simulation Physics, Department of Physics and Astronomy, the University of Georgia, Athens, 30602, GA, postdoctoral research associate

2002-continued, Department of Biology, Virginia Tech, Blacksburg, 24060 VA, postdoctoral research associate

Teaching experience

1989-1990, Mathematical Biology, two semester course, Biology Department of the Mongolian State University, Ulaanbaatar

1990-1991, Theory of Solid State, two-semester course, Physics Department of the Mongolian State University, Ulaanbaatar

2000, Nonlinear Dynamics, the Technology Department of the Mongolian Pedagogical University, Ulaanbaatar.

Professional Membership

American Physical Society

Research experience

Turbulence and pattern formation in reaction-diffusion systems

Kinetics of biochemical reactions

Cellular automata and neural network models

Monte Carlo simulations

Programming experience

Mathematica FORTRAN, C, IDL, PV-WAVE

UNIX, LINUX

Computer visualizations(see my computer videos at <http://www.FHI-Berlin.MPG.DE/compsys/>)

Parallel computing with MPI

Awards and Fellowships

Diploma of the Mongolian Physics Olympiad 1979

Volkswagen Foundation Stipendium 1994

Max Planck Society Stipendium 1996

JSPS(Japan Society for Promotion of Sciences) Fellowship 1997

The Outstanding Young Researcher Award of the Mongolian Academy of Sciences 1998

Seminars and Conferences attended by Dr. Battogtokh (since 1996)

Oscillation, Chaos and Network Dynamics in Nonlinear Science, Kyoto 2004, "Nonlinear Effects in Site Blocking Induced Oscillations", poster; "A Nonequilibrium Ising Bloch Transition in Externally Forced Nonlocally Coupled Oscillators", poster

Seminar on Computational Cell Biology(Prof. J. J. Tyson), Virginia Tech, Blacksburg, 2004, "Emergent Dynamics Near Cyclic Fold Bifurcations in A Cell Cycle Model", talk

Gordon Research Conference on Oscillations and Dynamic Instabilities in Chemical Systems, Maine, 2004, "Chemical turbulence near cyclic fold bifurcation in Birhythmic media", poster

Seminar on Biocomplexity(Prof. J. Glazier), Institute for Biocomplexity, Indiana University, Bloomington, 2004, "Turbulence in Birhythmic Media", talk

Symposium Biological Systems and Soft Materials: Future Directions in Statistical Physics, Blacksburg, Virginia, 2004, "Coexistence of coherence and incoherence in nonlocally coupled oscillators", talk

Seminar on Simulation Physics(D. P. Landau), University of Georgia, 2002, "Studying QA gene regulation network with ensemble method", talk

Seminar on Simulation Physics(D. P. Landau), University of Georgia, 2002, "Front Turbulence in Forced Oscillators", talk

Dynamic Days 2002, Baltimore, USA, "Turbulence in Nonlocally Coupled Phase Oscillators", poster

Seminar on Simulational Physics(D. Landau), University of Georgia, 2000, "Multi Scaled Turbulence in Large Populations of Oscillators", talk

Seminar on Nonlinear Dynamics, Mongolian State University, 2000, "Turing Hopf mixed mode solution in Nonlocally Coupled Complex Ginzburg-Landau Equation", talk

National Meeting of the American Chemical Society, New Orleans, 1999, "Cellular Train", talk

Nonlinear Physics Seminar, (Prof. Y. Kuramoto), Kyoto University, Kyoto 1999, "Splitting into Domains with Distinctive Dynamics in Nonlocally Coupled Phase Oscillators", talk

Centennial Meeting of the American Physical Society, Atlanta, 1999, "Multiaffine Chemical Turbulence", talk

Seminar on Chaos in Dynamical Systems (K. Kaneko and S. Sasa), Department of Pure and Applied Science, University of Tokyo, 1999, "Phase Jumps and Phase Turbulence in Nonlocally Coupled Systems", talk

EC Summer School on Multifractals -Mathematics and Applications, 1999, I. Newton Institute for Mathematical Sciences, Cambridge, UK, Multi-affine Chemical Turbulence, talk

Winter School on Time Series Analysis, Dresden, Germany, 1998, "Bubbling in reaction diffusion systems", poster

Seminar on Self-Organization (Prof. W. Ebeling and L. Geyer-Schimansky), Humboldt University, Berlin, Germany, 1998, "Multifractal and power law scaling turbulence in reaction diffusion systems", talk

Seminar on Reaction-Diffusion Systems, (Prof. M. Mimura,) , Department of Mathematics, University of Tokyo, Japan, 1998, "Lyapunov exponents of diffusively coupled Roessler oscillators, and the Brusselator" , talk

Nonlinear Physics Seminar, (Prof. Y. Kuramoto), Kyoto University, Kyoto 1997, "Localized and cellular structures in oscillatory systems", talk

Seminar on Solid State Physics, Moscow State University, Moscow 1997, "Dissipative structures in CO oxidation on platinum single crystals", talk

Conference in Complex Dynamics in Chemistry and Biology, Odense, Denmark, 1996, "Controlling turbulence in the complex Ginzburg-Landau equation" , poster

Control and Nonlinear Control of Chaos, International Center for Theoretical Physics, Trieste, Italy, 1996, "Time-delay control of spatiotemporal chaos" , talk

Seminar in Self-Organization in Macroscopic Systems(Prof. E. Schöel), Technical University of Berlin, 1996, "Simulations of globally coupled complex Ginzburg-Landau equation" , talk

Publication list of Dr. Battogtokh(over 170 citations)

1. D. Battogtokh, Nonlinear Effects in Site Blocking Induced Oscillations, Proc. of OCCN, Kyoto 2004.
2. D. Battogtokh, Nonequilibrium Ising Bloch Transition in Externally Forced Nonlocally Coupled Oscillators, Proc. of OCCN, Kyoto 2004.
3. J. J. Tyson, D. Battogtokh et. al., Generic Model of Cell Cycle, preprint.
4. D. Battogtokh and J. J. Tyson, Turbulence Near Cyclic Fold Bifurcations in Birhythmic Media, Physical Review E, v **70**, 026212(2004).
5. D. Battogtokh and J. J. Tyson, Bifurcation Analysis of A Budding Yeast Cell Cycle Model, Chaos v**14**, 653 (2004).
6. D. Battogtokh and B. Davaanyam, "Nonlinear Effects in Site Blocking Induced Oscillations", arXiv:condmat/0303019
7. Y. Kuramoto and D. Battogtokh, "Coexistence of Coherence and Incoherence in Nonlocally Coupled Phase Oscillators", Nonlinear Phenomena in Complex Systems, 5:4, 380, 2002
8. D. Battogtokh, "Front Instabilities in A Forced Oscillatory Medium with A Global Coupling", Phys. Rev. E., 66, 066202, 2002
9. D. Battogtokh, H.B. Schuttler, "Turbulence in Nonlocally Coupled Phase Oscillators", Physics Letters A, 299, 558, 2002
10. Arnold, J. H.-B. Schuttler, D. Logan, D. Battogtokh, . et. al. , "Metabolomics", to appear in In Handbook of Industrial Mycology. Marcel Dekker, NY
11. D. Battogtokh, D. K. Asch , et. al.," An Ensemble Method for Identifying Regulatory Circuits with Special Reference to the QA gene Cluster of Neurospora Crassa", PNAS USA, 99, 16904, 2002
12. Y. Kuramoto, H. Nakao, D. Battogtokh, "Multiscaled Turbulence in Large Populations of Oscillators in Diffusive Medium", 288, Physica A, 244, 2000
13. D. Battogtokh and D. Browne, "Cellular Train" , Physics Letters A, 266, 358, 2000
14. D. Battogtokh, "Pattern Formation in Nonlocally Coupled Oscillators", Prog. Theor. Phys., 1999, 102, 947
15. D. Battogtokh, Y. Kuramoto "Turbulent Regimes of Nonlocally Coupled Oscillators In the Benjamin Feir Stable Region", Phys. Rev. E, 2000, 61, 3227
16. Y. Kuramoto, D. Battogtokh, H. Nakao "Multiaffine Chemical Turbulence", Phys. Rev. Lett., 1998, 81, 3543
17. D. Lima, D. Battogtokh, A. Mikhailov, P. Borckmans, G. Dewel, "Pattern Selection in Oscillatory Media with Global Coupling" , Europhysics Letters, 1998, 42, 631
18. D. Battogtokh, A. Preusser, A. Mikhailov, "Controlling Turbulence in the Complex Ginzburg-Landau Equation II", Physica D, 1997, 106, 327
19. D. Battogtokh, M. Hildebrand, K. Krisher, A. S. Mikhailov, "Nucleation kinetics and global coupling in reaction-diffusion systems", Physics Reports 1997, 288, 435
20. K. S. Rose, D. Battogtokh, A. Mikhailov, R. Imbuhl, A. Bradshaw, "Cellular Structures in Catalytic Reactions with Global Coupling", Phys. Rev.

Lett., 1996, 76, 3582

21. D. Battogtokh, A. Mikhailov, "Controlling Turbulence in the Complex Ginzburg Landau Equation", *Physica D*, 1996, 90, 84

22. E. E. Selkov, T. Chuluun and D. Battogtokh, "Multiresonance phenomena in an open enzymic reaction", *Studia Biophysica*, 1991, 31, 137

23. D. Battogtokh, A. Preusser, A. Mikhailov, Localized turbulence and cellular structures in systems with global coupling, in *Nonlinear Physics of Complex Systems* (eds. J. Parisi, S. C. Muller and W. Zimmermann, Springer, 1996), pp 149-165

24. D. Battogtokh, Ph.D. Thesis, "Turbulence and Dissipative Structures in Oscillatory Media, Moscow University, 1995

25. D. Battogtokh and A. Mikhailov, Controlling Turbulence in the Complex Ginzburg Landau Equation, Proc. Int. Conf. "Complex Dynamics in Chemistry and Biology, Odense, Denmark, 1996, 24

26. D. Battogtokh, A. Clough, R. Vincent, A. Goldbeter, The Mitotic Oscillator Driving Cell Division Cycle, Proc. Workshop in Mathematical Biology, "Nonlinear Pattern Formation Modelling in Medicine and Biology", Abbaye de Fontevraud, 1993, 26

27. D. Battogtokh, Monte Carlo Simulation of Multilayer Hopfield Model, Proc. Inst. Exper. Theor. Biol. 25, 38, 1992

28. E. E. Selkov, T. Chuluun and D. Battogtokh, A study of resonance characteristics and chaos of a reaction chain, where first reaction is inhibited by the last product, Proc. Inst. Exper. Theor. Biol. 24, 22, 1991

29. J. Baasanjav, D. Battogtokh, Estimations of biomass of some fishes in Lake Buir by mathematical modeling, Proc. Inst. Exper. Theor. Biol. 23, 41, 1990

30. D. Battogtokh, A. Mikhailov, Autowaves in an active medium formed by cellular automata, Proc. Inst. Exper. Theor. Biol. 22, 7, 1989

Technical reports, etc..

D. Battogtokh, Artificial Intellegence, 1991, Mongolian Popular Science Journal, 122

D. Battogtokh, "Cellular Automata and Models of Heart", 1990, Mongolian Popular Science Journal, 55

D. Battogtokh, Stochastic Resonance and Modelling of Brain, 1989, Mongolian Popular Science Journal, 19