

CURRICULUM VITAE

Name: Yen Ting Lin

Citizenship: Taiwan, R.O.C.

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Education

2008-2013 Ph.D., Department of Physics, University of Michigan, Ann Arbor

Supervisor: Prof. Charles R. Doering

Thesis: Demographic Stochasticity in Evolutionary Biology

(2006-2008 Compulsory Military Service)

2004-2006 M.Sc., Department of Physics, National Taiwan University, Taipei, Taiwan, R.O.C.

2000-2004 B.Sc., Department of Physics, National Taiwan University, Taipei, Taiwan, R.O.C.

Professional Appointments

2016- Postdoctoral researcher at the Center for Nonlinear Studies (T-CNLS) and Biology and Biophysics group (T-6), Theoretical Division, Los Alamos National Laboratory, Los Alamos, USA.

2014-2016 Postdoctoral researcher at the School of Physics and Astronomy, The University of Manchester, United Kingdom.

2013-2014 Postdoctoral researcher at the Department of Biological Physics, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany.

Publications

2019 A. Shirin, I. Klickstein, S. Feng, Y. T. Lin, W. S. Hlavacek, and F. Sorrentino, Control of autophagic vesicle dynamics in a cell, *Scientific Report*, in press

L.-F. Chen, Y. T. Lin*, D. A. Gallegos, M. F. Hazlett, M. Gómez-Schiavon, M. G. Yang, B. Kalmeta, A. S. Zhou, L. Holtzman, C. A. Gersbach, J. Grandl, N. E. Buchler, and A. E. West, Enhancer histone acetylation modulates transcriptional bursting dynamics of neuronal activity-inducible genes, *Cell Reports*, **26**, 1174-1188 (*Lead theoretician)

K. E. Erickson, O. S. Rukhlenko, M. Shahinuzzaman, K. P. Slavkova, Y. T. Lin, R. Suderman, E. C. Stites, M. Anghel, R. G. Posner, D. Barua, B. N. Kholodenko, W. S. Hlavacek, Modeling cell line-specific recruitment of signaling proteins to the insulin-like growth factor 1 receptor, *PLoS Computational Biology*, **15**(1) : e1006706

- 2018 W. Huang, Y. T. Lin, D. Froemberg, J. Shin, F. Juelicher, and V. Zaburdaev, Exactly solvable dynamics of forced polymer loops, *New Journal of Physics*, **20**, 113005
- Y. T. Lin, N. W. Lemons, L. A. Chylek, and W. S. Hlavacek, Using equation-free computation to accelerate stochastic simulation of chemical kinetics, *Journal of Physical Chemistry B*, **122**(24), 6351-6356
- P. Bokes, Y. T. Lin, and A. Singh, High cooperativity in negative feedback can amplify noisy gene expression, *Bulletin of Mathematical Biology*, **80**: 1871.
- R. Suderman, E. D. Mitra, Y. T. Lin, K. E. Erickson, S. Feng, and W. S. Hlavacek, Generalizing Gillespie's direct method to enable network-free simulations, *Bulletin of Mathematical Biology*.
- Y. T. Lin, P. Hufton, and D. Potoyan, A stochastic and dynamical view of pluripotency in mouse embryonic stem cells, *PLoS Computational Biology*, **14** (2): e1006000.
- P. Hufton, Y. T. Lin, and T. Galla, Phenotypic switching of populations of cells in a stochastic environment, *Journal of Statistical Mechanics: Theory and Experiment*, 023501.
- Y. T. Lin and N. E. Buchler, Efficient analysis of stochastic gene dynamics in the non-adiabatic regime using piecewise deterministic Markov processes, *Journal of Royal Society Interface*, **15**: 20170804.
- 2017 Y. T. Lin, E. T. Y. Chang, J. Eatock, T. Galla, R. H. Clayton, Mechanisms of stochastic onset and termination of atrial fibrillation studied with a cellular automaton model, *Journal of Royal Society Interface* **14**: 20160968.
- 2016 P. Hufton, Y. T. Lin, T. Galla, and A. J. McKane, Intrinsic noise of population dynamics in randomly switching environments, *Physical Review E* **93** 052119.
- E. T. Y. Chang, Y. T. Lin, T. Galla, R. H. Clayton, and J. Eatock, A stochastic individual-based model of the progression of atrial fibrillation in individuals and populations, *PLoS ONE*, **11**(4): e0152349.
- Y. T. Lin and C. R. Doering, Gene expression dynamics with stochastic bursts: Construction and exact results for a coarse-grained model, *Physical Review E* **93**, 022409.
- Y. T. Lin and T. Galla, Bursting noise in gene expression dynamics: Linking microscopic and mesoscopic models, *Journal of the Royal Society Interface*, **13**: 20150772.
- 2015 Y. T. Lin, D. Frömberg, W. Huang, P. Delivani, M. Chacón, I. M. Tolić, F. Jülicher, and V. Zaburdaev, Pulled polymer loops as a model for the alignment of meiotic chromosomes, *Physical Review Letters*, **115**, 208102.
- J. Eatock, Y. T. Lin, E. T. Y. Chang, T. Galla, and R. H. Clayton, Assessing measures of atrial fibrillation clustering via stochastic models of episode recurrence, *Proceedings of Computing in Cardiology*.

C. Weber, Y. T. Lin, N. Biais, and V. Zaburdaev, Formation and dissolution of bacterial colonies, *Physical Review E* **92** 032704.

J. Taktikos, Y. T. Lin, H. Stark, N. Biais, and V. Zaburdaev, Pili-induced clustering of *N. gonorrhoeae* bacteria, *PLoS ONE* **10**(9): e0137661.

Y. T. Lin, H. Kim, and C. R. Doering, Demographic stochasticity and the evolution of dispersion II. Spatially inhomogeneous environments, *Journal of Mathematical Biology* **70** (3) 679-707 (accepted in 2014, submitted in 2013).

Y. T. Lin, H. Kim, and C. R. Doering, Demographic stochasticity and the evolution of dispersion I. Spatially homogeneous environments, *Journal of Mathematical Biology* **70** (3) 647-678 (accepted in 2014, submitted in 2013).

- 2013 N. Dianati and Y. T. Lin, Positive association and global connectivity in dependent percolation, arXiv:1305.6941.
- 2012 Y. T. Lin, H. Kim, and C. R. Doering, Features of fast living: On the weak selection for longevity in degenerate birth-death processes, *Journal of Statistical Physics*, **148** (4), 646-662.
- 2011 E. Khain, Y. T. Lin, and L. M. Sander, Fluctuations and stability in front propagation, *Europhysics Letters*, **93** 28001.
- 2009 D. A. Adams, Y. T. Lin, L. M. Sander, and R. M. Ziff, Harmonic measure for critical Potts clusters, *Physical Review E* **80** (3), 031141.
- 2006 Y. T. Lin and Y.-Y. Chen, Some Properties about a Traffic System with Branches—A Self-Organized System, *NTU Press*.

Submitted manuscripts and manuscripts in final preparation

Y. T. Lin and M. Anghel, Using deep recurrent neuron networks for inference and optimal control of dynamical systems, in final preparation for submission.

Y. T. Lin and N. E. Buchler, Bayesian statistical inference of discrete-state gene expression models using snapshots from single-molecule and single-cell experiments: efficient simulations, parameter and structural uncertainty quantification, model selection, and evidence-based experimental design, in final preparation for submission.

Y. T. Lin, Song Feng, and W. S. Hlavacek, Scaling methods to accelerate stochastic simulation for large and realistic chemical reaction networks, in preparation for submission.

P. Hufton, Y. T. Lin, and T. Galla, Model reduction methods for classical stochastic systems with fast-switching environments: reduced master equations, stochastic differential equations, and applications, two manuscripts submitted to *Phys. Rev. E*.

Received Awards

- 2013 Postdoctoral Fellowship at MPI-PKS (2013-2015)

- 2009 Rackham International Fellowship (2009-2010, University of Michigan).
- 2009 Departmental Fellowship (Department of Physics, University of Michigan).
- 2006 Graduated at the rank 1/59 of 2006 class (Master of Science, NTU)
- 2006 Award from Dean of College of Science, NTU (Graduate).
- 2004 Award from Dean of College of Science, NTU (Undergraduate).

Academic Appointments and Teaching experiences

- 2009-2013 University of Michigan, Ann Arbor, USA
 - Graduate Student Research Assistant.
Supervisor: Prof. Leonard M. Sander and Prof. Charles R. Doering.
 - Graduate Student Instructor of Mechanics Lab (PHYS 127,141) and E&M Lab (PHYS 241).
 - Grader of Condensed Matter Physics (graduate level, PHYS 540) and Quantum Mechanics (undergraduate level, PHYS 460)
- 2004-2006 National Taiwan University
 - Teaching Assistant of Classical Electrodynamics (Graduate level), Quantum Mechanics (Graduate level), Classical Mechanics (Graduate level), and Applied Mathematics (Undergraduate level).
 - Research Assistant funded by the National Science Council, Taiwan, R.O.C.
Supervisor: Prof. Yih-Yuh Chen.
- 2004 Academia Sinica, Taiwan, R.O.C.
 - Research Assistant.
Supervisor: Prof. Chih-Ping Wong.

Seminars / Conferences / Summer Schools

- 2019 [Pending] Invited speaker in the minisymposium “*Stochastic dynamics and applications: non-Gaussian noises*” at the 9th International Congress on Industrial and Applied Mathematics, Valencia, Spain
- 2018 Invited speaker at the departmental seminar of the Department of Biomathematics, University of California – Los Angeles, USA
Invited speaker at the SIAM-Life Sciences biennial meeting, Minnesota, USA
Invited lecturer at the q-bio summer school, Albuquerque, USA
Invited speaker at the seminar of the Department of Mechanical Engineering, University of New Mexico, Albuquerque, USA

- 2017 Invited speaker at the seminar of the Department of Mathematics, University of Michigan–Ann Arbor, Ann Arbor, USA
- Invited speaker at the seminar of the Department of Mathematics, University of Michigan–Dearborn, Dearborn, USA
- Invited speaker at the seminar of the Department of Mathematics, Brigham Young University, Provo, USA
- Contributed speaker at the Society of Mathematical Biology Annual Meeting, Salt Lake City, USA
- Invited speaker at the SIAM-Dynamical System biennial meeting, Snowbird, USA
- Invited speaker at the 37th Annual Conference of the Center of Nonlinear Studies: Applied Statistical Physics, Santa Fe, USA
- Contributed speaker at the DPG Spring Meeting, Dresden, Germany
- 2016 Invited speaker at European Conference on Mathematical and Theoretical Biology (Mini-symposium “Stochastic modelling of biological systems”), Nottingham, UK
- Contributed speaker at Fluctuation-driven phenomena in biological systems, Warwick, UK
- Contributed speaker at the DPG Spring Meeting, Regensburg, Germany
- Poster presentation at Multiscale methods for stochastic dynamical systems in biology, Edinburgh, UK
- Contributed speaker at 35th Dynamics Days US, Durham, USA.
- 2015 Contributed speaker at Fluctuation driven phenomena in non-equilibrium statistical mechanics, Warwick, UK.
- 2014 Invited speaker at the Fluctuations in Population Biology, Epidemiology, and Evolution, Leiden, the Netherlands.
- Contributed speaker at the DPG Spring Meeting, Dresden, Germany
- Contributed speaker at the 33th Dynamics Days US, Atlanta, USA.
- Invited speakers at departmental seminars: Department of Physics at the National Taiwan University, Department of Mathematics at the Tamkang University, National Center for Theoretical Sciences, and Institute for Mathematical Modelling and Scientific Computing, National Chiao Tung University, Taiwan.
- 2013 Applied mathematics seminar at the University of Nottingham.
- Departmental seminar at the Max Planck Institute for the Physics of Complex Systems.

- Contributed speaker at the Models in Population Dynamics and Ecology.
Poster presentation at the 32th Dynamics Days US, Denver, USA.
- 2012 Poster presentation at the Advances in Percolation and Related Topics MCTP Workshop, Ann Arbor, USA.
Poster presentation at the 12th Experimental Chaos and Complexity Conference, Ann Arbor, USA.
Invited poster presentation at the International Conference of Stochastic Processes in Systems Biology, Genetics & Evolution, Huston, USA.
- 2011 Speaker of Physics Graduate Student Symposium, Ann Arbor, USA.
- 2011 Joint 2011 MBI-NIMBioS-CAMBAM Summer Graduate Workshop on Mathematical Ecology and Evolution, Columbus, USA.
- 2006 Speaker of Annual Departmental Graduate Student Seminar (NTU Physics)

Language skills

Mandarin Chinese (Native); English (fluent)

Services

I am a regular reviewer for *Physical Review Letters*, *Physical Review E*, *Journal of Royal Society Interface*, *Journal of Mathematical Neuroscience*, *Fluctuation and Noise Letters*, *Physical Letters A*, *Journal of Mathematical Biology*, and *Journal of Statistical Physics*. In the past two years, I reviewed about five manuscripts annually.