

# Curriculum Vitae

Waipot Ngamsaad, Ph. D.

## CURRENT POSITION

**Assistant Professor**

School of Science, University of Phayao,  
Mueang Phayao, Phayao 56000, Thailand

## PERSONAL INFORMATION

<b>Sex</b>	Male
<b>Status</b>	Married
<b>Nationality</b>	Thai
<b>Religion</b>	Buddhist
<b>Date of birth</b>	June 27 <sup>th</sup> , 1980
<b>Place of birth</b>	Uttaradit, Thailand
<b>Current address</b>	School of Science, Phayao University, 19 Moo 2, Mae Ka, Mueang Phayao, Phayao 56000, Thailand
<b>Phone</b>	Office : (+66) 54-466-6666 ext. 1700
<b>E-mail</b>	waipot.ng@up.ac.th, waipotn@yahoo.com

## RESEARCH INTEREST

- Lattice Boltzmann Methods for Computational Fluid Dynamics
- Reaction-Diffusion Modeling
- Phase-Separation in Lipid Bilayers and Membrane
- Robotics
- Deep learning

## COMPUTER SKILLS

- Operating Systems : Linux, Windows
- Programming : C/C++, Java, Python, Matlab
- Internet Technology : HTML, XML, PHP, MySQL, JavaScript
- Word processing : LaTeX, MS-Word

## ONLINE-CERTIFICATIONS

1. Deep Learning Fundamentals with Keras, edX, May 2019,  
<https://courses.edx.org/certificates/12035977999141c494bde30de9e3bd76>
2. UTQML101x: Quantum Machine Learning, edX, October 2019,  
<https://courses.edx.org/certificates/0593093dc32944618177e77569c92d31>
3. The Introduction to Quantum Computing, Coursera, October 2019,  
<https://www.coursera.org/account/accomplishments/verify/H4L78XQEEW9E>
4. AMRx: Autonomous Mobile Robots, edX, October 2019,  
<https://courses.edx.org/certificates/7416eac9ee5e40099b0f8a3cfd6e5214>
5. Hello (Real) World with ROS – Robot Operating System, edX, March 2020,  
<https://courses.edx.org/certificates/73d43ec3675c4d10acc05cb434de3ae3>

## EDUCATION

**2005 – 2009** Ph.D. (Physics), Department of Physics, Faculty of Science,  
Mahidol University, Bangkok, Thailand

**Ph.D. Thesis:** Lattice Boltzmann Method for Biophysical  
Systems: Binary Fluid and Protein Flows

**Advisor:** Assoc. Prof. Dr. Wannapong Triampo

**2003 – 2004** M.Sc. (Physics), Department of Physics, Faculty of Science,  
Mahidol University, Bangkok, Thailand

**M.Sc. Thesis:** The Dynamics of the Partitioning of the  
Bacteria:

Lattice-Boltzmann Method

**Advisor:** Prof. Dr. I-Ming Tang

**1999 – 2002** B.S. (Physics), Department of Physics, Faculty of Science,  
Chiang Mai University, Chiang Mai, Thailand  
**Senior project:** Computing of 3-body Problems using  
Numerical Methods  
**Advisor:** Lect. Dr. Cherdsak Saelee

## **WORK EXPERIENCE**

**2013 – Present** Assistant Professor at School of Science, University of Phayao,  
Phayao, Thailand  
**2010 – 2013** Lecturer at School of Science, University of Phayao, Phayao,  
Thailand

## **RESEARCH GRANT**

**2016 - 2018** Research Grant for New Scholar by The Thailand Research Fund  
and Office of the Higher Education Commission (OHEC), Project  
title: Continuum mechanical model for the self-propelled bacteria  
collective dynamics (No. MRG5980258)  
**2015 - 2018** Research Fund for DPST Graduate with First Placement by  
Institute for the Promotion of Teaching Science and Technology  
(IPST), Project title: Approximate solution for the flux limited  
reaction-diffusion equation in population dynamics (No. 28/2557)  
**2014 - 2016** TRF Grant for New Researcher by The Thailand Research Fund  
and University of Phayao, Project title: Reaction-diffusion model  
for mechanically spreading of bacterial populations (No.  
TRG5780037)

## **AWARD/SCHOLARSHIP**

**2013** Inclusion in Marquis Who's Who in the World 2014 (31st  
Edition)  
**2005 – 2009** The Development and Promotion of Science and Technology  
Talent Project (DPST) for Doctoral Degree

- 2003 – 2005** The Development and Promotion of Science and Technology Talent Project (DPST) for Master Degree
- 1999 – 2003** The Development and Promotion of Science and Technology Talent Project (DPST) for Bachelor Degree

## ACADEMIC ATIVITIES

- 2009** Teaching Assistantship from Department of Physics, Faculty of Science, Mahidol University
- 2009** Mentor for Kan Sornbundit on the M.Sc. Thesis “*A Biophysical Model for Monolayer-Monolayer Coupling in Lipid Bilayers: Statistical Mechanical Analysis and Monte Carlo Simulation*”
- 2008** A code developer in the Development of the Lattice Boltzmann Modeling for Microfluidics and Applications Project supported by Thai National Grid Center (ThaiGrid) under the Software Industry Promotion Agency (SiPA)
- 2007** 1-Year Research Training at the Department of Physics, North Dakota State University, North Dakota State (USA), starting from September 1<sup>st</sup>, 2007 to August 31<sup>st</sup>, 2008 under Supervisor: **Assoc. Prof. Dr. Alexander J. Wagner**
- 2007** A Staff of Thailand Biophysics Contest 1<sup>st</sup>, arranged by BioPhysics Group, Mahidol University at Salay Campus, Nakhon Pathom, Thailand
- 2005** Join the DPST 20<sup>th</sup> Anniversary Conference at Bangkok International Trade & Exhibition Centre (BITEC), Bang Na, Bangkok, Thailand
- 2003** Join the 17<sup>th</sup> DPST Science Summer Camp, arranged by Silpakorn University at Sanam Chan Palace Campus, Nakhon Pathom, Thailand
- 2000** Join the 14<sup>th</sup> DPST Science Summer Camp, arranged by Khon Kaen University, Khon Kaen, Thailand

## PUBLICATIONS

**2020**

- 1. Waipot Ngamsaad** and Suthep Suantai, “*Perturbative traveling wave solution for a flux-limited reaction-diffusion morphogenesis equation*” Journal of the Korean Physical Society (2020), **To be appered.**

## 2018

2. **Waipot Ngamsaad** and Suthep Suantai, “*Propagating wave in the flock of self-propelled particles*” Physical Review E (2018), **98**: 062618.

## 2016

3. **Waipot Ngamsaad** and Suthep Suantai, “*Mechanically-driven spreading of bacterial populations*” Communications in Nonlinear Science and Numerical Simulation (2016), **35**: 88-96.

## 2014

4. **Waipot Ngamsaad**, “*Radial propagation in population dynamics with density-dependent diffusion*” Physical Review E (2014), **89**: 012122.

## 2013

5. Kan Sornbundit, Charin Modchang, Narin Nuttavut, **Waipot Ngamsaad**, Darapond Triampo and Wannapong Triampo, “*An Ising-like model for monolayer-monolayer coupling in lipid bilayers*” Journal of the Korean Physical Society (2013), **63**: 71-77.

## 2012

6. **Waipot Ngamsaad** and Kannika Khompurngson, “*Self-similar dynamics of bacterial chemotaxis*” Physical Review E (2012), **86**: 062901.
7. **Waipot Ngamsaad** and Kannika Khompurngson, “*Self-similar solutions to a density-dependent reaction-diffusion model*” Physical Review E (2012), **85**: 066120.
8. Kan Sornbundit, **Waipot Ngamsaad**, Charin Modchang, Narin Nuttavut, Darapond Triampo and Wannapong Triampo, “*Compositional domain dynamics in two-coupled lipid monolayer: A mean field approximation approach*” International Journal of the Physical Sciences (2012), **7**: 6034-6043.

## 2011

9. **Waipot Ngamsaad**, Sylvio May, Alexander J. Wagner and Wannapong Triampo, “*Pinning of Domains for Fluid-Fluid Phase Separation in Lipid Bilayers with Asymmetric Dynamics*” *Soft Matter* (2011), **7**: 2848-2857.
10. Sitta Aroonnuat, **Waipot Ngamsaad**, Paisan Kanthang, Narin Nuttavut, Wannapong Triampo, Darapond Triampo and Chartchai Krittanai, “*Spatial distributions and energy landscape of MinE protein dynamics via the biophysical spot tracking technique*” *International Journal of the Physical Sciences* (2011), **6**: 3795–3806.
11. Paisan Kanthang, **Waipot Ngamsaad**, Narin Nuttavut, Wannapong Triampo, Darapond Triampo and Chartchai Krittanai, “*Biophysical approach for studying the MinD protein dynamics and energy landscape: a novel use of the spot tracking technique*” *The European Physical Journal Applied Physics* (2011), **55**: 11201.

## 2010

12. **Waipot Ngamsaad**, Jiraporn Yojina and Wannapong Triampo, “*Theoretical studies of Phase-Separation Kinetics in a Brinkman Porous Medium*” *Journal of Physics A: Mathematical and Theoretical* (2010), **43**: 202001.
13. **Waipot Ngamsaad**, Paisan Kanthang, Charin Modchang, Somchai Sriyab and Wannapong Triampo, “*The Effect of Boundary Conditions on Mesoscopic Lattice Boltzmann Method: case Study of a Reaction-Diffusion Based Model for Min-Protein Oscillation*” *Applied Mathematics and Computation* (2010), **217**: 2339-2347.
14. Jiraporn Yojina, **Waipot Ngamsaad**, Narin Nuttavut, Darapond Triampo, Yongwimon Lenbury, Paisan Kanthang, Somchai Sriyab and Wannapong Triampo, “*Investigating flow patterns in a channel with complex obstacles using the lattice Boltzmann method*” *Journal of Mechanical Science and Technology* (2010), **24**: 2025-2034.
15. Jiraporn Yojina, **Waipot Ngamsaad**, Narin Nuttavut, Darapond Triampo, Yongwimon Lenbury, Wannapong Triampo, Paisan Kanthang and Somchai

Sriyab, “*More Realistic Model for Simulating Min Protein Dynamics: Lattice Boltzmann Method Incorporating the Role of Nucleoids*” International Journal of Computational and Mathematical Sciences (2010), **4**: 177-182.

## 2009

16. **Waipot Ngamsaad**, Jiraporn Yojina, Paisan Kanthang, Charin Modchang, Chartchai Krittanai, Darapond Triampo, Narin Nuttawut and Wannapong Triampo, “*Quantitative approach of Min protein researches and applications: Experiments, mathematical modeling and computer simulations*” African Journal of Biotechnology (2009), **8**: 7350-7362.
17. Somchai Sriyab, Jiraporn Yojina, **Waipot Ngamsaad**, Pisan Kangthang, Charin Modchang, Narin Nuttavut, Yongwimon Lenbury, Chartchai Krittanai and Wannapong Triampo, “*Mesoscale modeling technique for studying the dynamics oscillation of min protein: Pattern formation analysis with lattice Boltzmann method*” Computers in Biology and Medicine (2009), **39**: 412-424.
18. Somrit Unai, Paisan Kanthang, Udorn Junthon, **Waipot Ngamsaad**, Wannapong Triampo, Charin Modchang and Chartchai Krittanai, “*Quantitative analysis of time-series fluorescence microscopy using a spot tracking method: application to Min protein dynamics*”, Biologia (2009), **64**: 27-42.

## 2008

19. Charin Modchang, Wannapong Triampo, Paisan Kangthang, Udorn Junthorn, Somrit Unai, **Waipot Ngamsaad**, Narin Nuttawut, Darapond Triampo and Yongwimon Lenbury, “*Stochastic modeling of external electric field effect on Escherichia coli Min protein dynamics*” Journal of the Korean Physical Society (2008), **53**: 851-862.
20. Udorn Junthorn, Somrit Unai, Paisan Kangthang, **Waipot Ngamsaad**, Charin Modchang, Wannapong Triampo, Chartchai Krittanai, Darapond Triampo and Yongwimon Lenbury, “*Single-particle tracking method for quantitative tracking and biophysical studies of the MinE protein*” Journal of the Korean Physical Society (2008), **52**: 639-648.

**2005**

21. **Waipot Ngamsaad**, Wannapong Triampo, Paisan Kanthang, I-Ming Tang, Narin Nuttawut, Charin Modchang and Yongwimon Lenbury, “*A Lattice Boltzmann Method for Modeling the Dynamic Pole-to-Pole Oscillations of Min Proteins for Determining the Position of the Midcell Division Plane*”, Journal of the Korean Physical Society (2005), **46**: 1025-1030.
22. Charin Modchang, Paisan Kanthang, Wannapong Triampo, **Waipot Ngamsaad**, I-Ming Tang, Narin Nuttawut, Suchitra Sanguansin, Ankana Boondirek and Yongwi-mon Lenbury, “*Modeling of the Dynamic Pole-to-Pole Oscillations of the Min Proteins in Bacterial Cell Division: the Effect of an External Field*”, Journal of the Korean Physical Society (2005), **46**: 1031-1036.

#### **CONFERENCES, PROCEEDINGS, PRESENTATIONS**

**2018**

1. **Waipot Ngamsaad**, “*Traveling wave solution for a flux limited reaction-diffusion equation*”, Siam Physics Congress 2018, Topland Hotel, Phisanulok, Thailand, May 21-23, 2018.

**2016**

2. **Waipot Ngamsaad**, “*Flux limited reaction-diffusion model for population dynamics*”, The 8th National Science Research Conference, University of Phayao, Phayao, Thailand, May 30-31, 2016.

**2012**

3. Tanaporn Kaewtubtim and **Waipot Ngamsaad**, “*Ground state of trihydrogen cation  $H_3^+$ : Quantum monte carlo simulation with the optimal trial wave function*”, Proceedings of the 38th Congress on Science and Technology of Thailand, Empress Convention centre, Chiang Mai, Thailand, October 17-19, 2012.
4. Komsun Rapaway and **Waipot Ngamsaad**, “*The calculations on electronic band structure and wavefunctions of graphene nanoribbons*”, Proceedings of



the 38th Congress on Science and Technology of Thailand, Empress Convention centre, Chiang Mai, Thailand, October 17-19, 2012.

#### 2010

5. **Waipot Ngamsaad**, Jiraporn Yojina and Wannapong Triampo, “*Domain Coarsening in a Brinkman Porous Medium*” Siam Physics Congress 2010, March 25-27, 2010, River Kwai Village Hotel, Kanchanaburi, Thailand.
6. Kan Sornbundit, **Waipot Ngamsaad**, Darapond Triampo and Wannapong Triampo, “*Monte Carlo Simulation of Two-component Bilayers with Interlayer Coupling*” 14<sup>th</sup> International Annual Symposium on Computational Science and Engineering (ANSCSE14), March 23 – 26, 2010, Mae Fah Luang University, Chiang Rai, Thailand.

#### 2009

7. **Waipot Ngamsaad**, Sylvio May, Wannapong Triampo and Alexander J. Wagner, “*Phase-Separation in Supported Lipid Bilayers and the Analysis for Arrested Length-Scale*” 18<sup>th</sup> International Conference on the Discrete Simulation of Fluid Dynamics (DSFD 2009), July 6-10, 2009, Beijing, China.

#### 2008

8. **Waipot Ngamsaad**, Sylvio May, Wannapong Triampo and Alexander J. Wagner, “*A lattice-Boltzmann simulation of Phase-separation in Lipid-bilayers*” 17<sup>th</sup> International Conference on the Discrete Simulation of Fluid Dynamics (DSFD 2008), August 4-8, 2008, Florianópolis, Santa Catarina State, Brazil.

#### 2007

9. Somrit Unai, Pisan Khantang, Udon Junthorn, **Waipot Ngamsaad**, Narin Nattavut, Wannapong Triampo and Chartchai Krittana, “*Single particle tracking: Application to study MinD protein oscillation in live Escherichia coli*” 33<sup>rd</sup> Congress on Science and Technology of Thailand (STT.33), October 18-20, 2007, Walailak University, Nakhon Si Thammarat, Thailand.
10. Udon Junthorn, Somrit Unai, Paisan Kangthang, **Waipot Ngamsaad**, Wannapong Triampo, Charin Modchang, Chartchai Krittana, and Yongwimon

Lenbury, “*How to track MinE protein oscillations in Escherichia coli*” 33<sup>rd</sup>  
Congress on Science and Technology of Thailand (STT.33), October 18-20, 2007,  
Walailak University, Nakhon Si Thammarat, Thailand.

## 2005

11. **Waipot Ngamsaad**, Wannapong Triampo, Paisan Kanthang, I-Ming Tang, Narin Nuttawut, Charin Modchang and Yongwimon Lenbury, “*A Lattice Boltzmann Method for Modeling Min Proteins Oscillation in Escherichia coli*” Proceedings of the International Conference in Mathematics and Applications, December 15-17, 2005, Chaophaya Park Hotel, Bangkok, Thailand.
12. **Waipot Ngamsaad**, Wannapong Triampo, Paisan Kanthang, I-Ming Tang, Narin Nuttawut, and Charin Modjung, “*A Lattice Boltzmann Method for Modeling the Dynamic Pole-to-Pole Oscillations of Min Proteins for Determining the Position of the Midcell Division Plane*”, The Second International Conference for Mesoscopic Methods in Engineering and Science, July 26-29, 2005, Hong Kong Polytechnic University, Hong Kong.