CURRICULUM VITAE

(last updated: February 25, 2021)

Meesoon Ha

Associate Professor

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Research Interests

I am interested in the applications of statistical physics in terms of simple minimal model studies with essential features of complex systems. The below research topics are what I am currently involved in:

- **Phase transitions: Finite-size scaling and universality class; Quantum & Stochastic thermodynamics**
- **Kinetic roughening and multifractality in thin film growth processes**
- **Nonequilibrium stochastic processes: Self-organized criticality; Synchronization**
- **Dynamics on and of complex networks: Epidemic process; Social contagion; Neuroscience**
- **Patterns and collective behavior in granular media and/or colloidal particle systems**
- **Random constraint satisfaction (NP-complete) problems: K-SAT and Q-COL**
- **Glass and jamming transitions with dynamic heterogeneity; Disordered systems**

Professional Experience

- 2019.08. - 2020.07. Visiting Associate Professor, Dept. of Physics, University of Washington
- 2017.03. - present Associate Professor, Dept. of Physics Education, Chosun University
- 2011.03. - 2017.02. Assistant Professor, Dept. of Physics Education, Chosun University
- 2007 – 2011 BK21 Research Professor, Dept. of Physics
  Korea Advanced Institute of Science and Technology (KAIST)
- 2006 – present Associate Member, School of Physics, KIAS
- 2006 – 2007 Brain Korea 21 (BK21) Endowed Professor
  Dept. of Physics, Chonbuk National University
- 2003 – 2006 Postdoctoral Research Fellow, School of Physics
  Korea Institute for Advanced Study (KIAS)
- 1997 – 2003 RA and TA, Dept. of Physics, University of Washington, U.S.A.
- 1995 – 1996 Part-time Lecturer & Staff of General Physics Lab
- 1993 – 1995 Research Assistant (RA) and Teaching Assistant (TA)
  Dept. of Physics, Korea University

Official Visits

- 2018 summer; 2014; 2013; 2012 Prof. Bae-Yeun Ha's group
  Dept. of Physics and Astronomy, University of Waterloo, Waterloo, Canada
- 2019.02.06. - 14.; 2018.01.07. - 15.; 2017.01.21. - 27.; 2011.12.28. - 2012.01.20.
  Prof. Marcel den Nijs' group
  Dept. of Physics and Astronomy, University of Washington, Seattle, U.S.A.
  [see http://faculty.washington.edu/london/index.html]
- 2008.05.10. - 06.01. *Nordic Institute for Theoretical Physics*, Stockholm, Sweden
  "Physics of Distributed Information Systems" (PhysDIS) program and workshop
  [see http://agenda.albanova.se/conferenceDisplay.py?confId=296]
- 2006.11.06. - 12.01. Prof. M. Paczuski's complexity science group
  Dept. of Physics and Astronomy, University of Calgary, Calgary, Canada
  [see http://www.ucalgary.ca/complexity/people/faculty/maya]
- 2002.12.23. - 2003.01.23. Prof. H. Park's group, School of Physics, KIAS, Korea

Education

- 1997 - 2003 Ph.D. in Physics at the University of Washington, Seattle, U.S.A.
  Specialty: Condensed-Matter Theory and Statistical Physics
  Ph.D. dissertation with Prof. Marcel den Nijs:
  "*Scaling and phase transitions in 1D nonequilibrium driven systems*"
- 1993 - 1995 M.S. in Physics at Korea University, Seoul, Korea
  Specialty: Statistical Physics
  M.S. thesis with Prof. In-mook Kim and Prof. Hyunggyu Park:
  "*Dynamic properties of one-dimensional nonequilibrium interfaces*"
- 1989 - 1993 B.S. in Physics at Inha University, Inchon, Korea

Awards and Honors

- Award for the Best Teacher (ABT) for Spring 2019 & Fall 2020 at EIC, Chosun University
- 2017.02.23. Best Professor for Class Evaluation in College of Education, Chosun University
- 2016.02.15. & 10.14. **A**CE **B**est **T**eacher at Fall 2015 & Spring 2016, Chosun University
- 2010.09.28. "Marquis Who's Who in the World 2011 (28th edition)" Selection & Inclusion
- 2010.04.21. Yong-Bong Prize (under 40-year-old stat. physicist) at Korean Physical Society
- 2001 Full scholarship at International Summer School (FPSPX), Altenberg, Germany
- 1994.03.26. & 09.10. Baekwoon private fellowships at Korea University, Seoul, Korea
- 1990 – 1992 Honor student scholarships at Inha University, Inchon, Korea

Professional Memberships and Activities

- Chairperson, Dept. of Physics Education at Chosun University, March 2017 – February 2019
- Editor, New Physics: Sae Mulli (KPS), May 2016 - April 2019; extended April 2022
- Appointed Admission Interviewer at Chosun University, 2013 - present
- Member of Local Organizing Committee, STATPHYS 25, July 22 - 26, 2013
- Reviewer, National Research Foundation (NRF - Korea) proposal since 2010
- Appointed Admission Interviewer at KAIST, 2009 & 2010
- Referee, JKPS, PRL, PRE since 2007; JSTAT since 2008; CEJP, Phys. Lett. A, EPL since 2010; EPJB since 2015; Scientific Report since 2016; Aerospace and Sustainability since 2018
- Reviewer, National Science Foundation (NSF - U.S.A.) proposal since 2007
- Member, Molecular Dynamics simulation Research Group (MDRG) since 2007
- Member, 2030 Kangwon Frontier Brain (youngman) Group since 2007
- Member, The APS since 1997 (NW section, 1998), The KPS since 1994 (Division of SP, 2003)
- Mentor, 1st year physics graduate students at the University of Washington (UW), 2002 - 2003
- Volunteer and member, The CDO for Physicists and Astronomers at the UW, 2001 - 2003

Grants

* National Research Foundation (NRF) of Korea, grant funded by the Korean government
Senior Researchers for 5 years (March 2020 – February 2025); *Qualified Scientists in Local Universities* for 3+3 years (June 2014 - May 2020); *Female Scientists* - since May 2011 for 3 years (May 2011 - April 2014).

* Chosun University Research Fund (October 2020 – September 2021, 2019; 2018; 2013; 2011)

Computer Skills

- Extensive knowledge: Unix, Linux, Windows/OS2, C/C++, LaTeX, Gnuplot, Xfig
- Working knowledge: Mathematica, Origin, Fortran, HTML, MacOS, MS Office
- Familiar with: MatLab, Maple, Photoshop, Xmgrace

Personal Data

- Date and Place of Birth: December 07, 1970, Seoul, Korea (ROK)
- Languages: Fluent in Korean and American English ● Marital status: Married, One child

List of Publications

(last updated: February 25, 2021)

Journal articles, preprints, and in preparation

(in preparation)

[50] "Role of initial conditions in dynamic scaling analysis of synchronization",
W. Kwak, C. Choi, and M. Ha (in preparation)

(in revision/pending)

[49] Comment on "Fluctuation theorem for hidden entropy production",
Y. Baek, M. Ha, H. Jeong, and H. Park (in revision; arXiv:1402.1235v3)

[48] "Nonlinear stability of phase-locked states for the Kuramoto model with finite inertia",
Y.-P. Choi, C. Choi, M. Ha, S.-Y. Ha (in revision; arXiv:1112.2763v1)

[47] "Role of power-law type long-term memory in the contact process",
M. Ha, S. Kwon, H.S. Park, and H. Park (KIAS preprint)

(to be submitted soon)

[46] "Inertial effect on synchronization of globally coupled oscillators",
C. Choi and M. Ha (to be submitted)

[45] "Dynamic crossover of Ising spins coupled to nonlinear growth",
Y. Baek, M. Ha, H. Park, and M. den Nijs (to be submitted)

(submitted/accepted)

(published journal articles)

[44] "Quantumness and thermodynamicuncertainty relation of the finite-time Otto engine",
S. Lee, M. Ha, and H, Jeong **[Physical Review E 103**, 022136 **(2021)]**

[43] "Driven Contact Process with Temporal Feedback",
M. Ha **[New Physics: Sae Mulli 70**, 613 **(2020)]**

[42] "Finite-time quantum Otto engine: Surpassing the quasi-static efficiency due to friction",
S. Lee, M. Ha, J.-M. Park, and H, Jeong **[Physical Review E 101**, 022127 **(2020)]**

[41] "Passive tracer dynamics in slow-bond problem",
H. Soh, and M. Ha **[Journal of Statistical Mechanics (2019) P**09409**]**

[40] "Impact on temporal connectivity patterns in epidemic process",
H. Kim, M. Ha, and H. Jeong **[Eur. Phys. J. B 91**, 161 **(2019)]**

[39] "Critical Phenomena in Generalized Epidemic Process",
M. Ha **[New Physics: Sae Mulli 69**, 649 **(2019)]**

[38] "Effect of Thermal Noise on Conserved Lattice Gas",
W. Kwak and M. Ha [**Journal of the Korean Physical Society 74**, 918 **(2019)]**

[37] "Role of hubs in the synergistic spread of behavior",
Y. Baek, K. Chung, M. Ha, H. Jeong, and D. Kim **[Physical Review E 99**, 020301(R) **(2019)]**

[36] "Dynamic topologies of activity-driven temporal networks with memory",
H. Kim, M. Ha, and H. Jeong **[Physical Review E 97**, 062148 **(2018)]**

[35] "Role of Cutoff Scaling in Scale-Free Networks",
M. Ha **[New Physics: Sae Mulli 68**, 563 **(2018)]**

[34] "Jamming and condensation in one-dimensional driven flow",
H. Soh, M. Ha, and H. Jeong **[Physical Review E 97**, 032120 **(2018)]**

[33] "Finite-Size Scaling in *q*-Coloring Problems",
M. Ha **[New Physics: Sae Mulli 67,** 1023 **(2017)]**
[32] "Effects of a local defect on one-dimensional nonlinear surface growth",
H. Soh, Y. Baek, M. Ha, and H. Jeong **[Physical Review E 95**, 042123 **(2017)]**
[31] "Generalized Conserved Lattice Gas on Random Networks",
W. Kwak, S. Park, and M. Ha **[New Physics: Sae Mulli 66,** 1210 **(2016)]**
[30] "Universality classes of generalized epidemic process on random networks",
K. Chung, Y. Baek, M. Ha, H. Jeong **[Physical Review E 93**, 052304 **(2016)]**
[29] "Scaling properties in time-varying networks with memory",
H. Kim, M. Ha, and H. Jeong **[Eur. Phys. J. B 88,** 315 **(2015)]**
[28] "Spatial Correlations and Extended Self-Similarity Properties in Sandpiles",
M. Ha **[New Physics: Sae Mulli 65,** 1009 **(2015)]**
Selected Highlight Paper
[27] "Effects of junctional correlations in the TASEP on random regular networks",
Y. Baek, M. Ha, and H. Jeong **[Physical Review E 90**, 062111 **(2014)]**
[26] "Dynamic Scaling Analysis of Critical Behaviors in Nonequilibrium Processes",
M. Ha **[New Physics: Sae Mulli 64,** 819 **(2014)]**
[25] "Generalized epidemic process on modular networks",
K. Chung, Y. Baek, D. Kim, M. Ha, and H. Jeong **[Physical Review E 89**, 052811 **(2014)]**
[24] "Expansion dynamics of a self-avoiding polymer in a cylindrical pore",
Y. Jung, C. Jeon, M. Ha, and B. Ha **[EPL, 104 (2013)** 68003]
[23] "Extended finite-size scaling of synchronized coupled oscillators",
C. Choi, M. Ha, and B. Kahng **[Physical Review E 88,** 032126 **(2013)]**
[22] "Stochastic Local Search in Random Constraint Satisfaction Problems",
M. Ha **[New Physics: Sae Mulli 63,** 995 **(2013)]**
[21] "Impact of sequential disorder on the scaling behavior of airplane boarding time",
Y. Baek, M. Ha, and H. Jeong **[Physical Review E 87,** 052803 **(2013)]**
[20] "Numerical Study of Synchronization in the Kuramoto Model with Finite Inertia",
C. Choi and M. Ha **[New Physics: Sae Mulli 62,** 958 **(2012)]**
Selected Highlight Paper
[19] "Fundamental Structural Constraint of Random Scale-Free Networks",
Y. Baek, D. Kim, M. Ha, and H. Jeong **[Physical Review Letters 109,** 118701 **(2012)]**
[18] "Kinetic roughening in polymer thin film growth",
M. Ha **[Physics Procedia 64 (2012) pp.** 44-48]
[17] "Absorbing states of zero-temperature Glauber dynamics in random networks",
Y. Baek, M. Ha, and H. Jeong **[Physical Review E 85,** 031123 **(2012)]**
[16] "Effect of Blockage on Driven Flow with Periodic Boundary Conditions",
M. Ha **[New Physics: Sae Mulli 61,** 909 **(2011)]**

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[15] "Finite-size scaling in random *K*-satisfiability problems (K-SAT)",
S.H. Lee, M. Ha, C. Jeon and H. Jeong **[Physical Review E 82,** 061109 **(2010)]**
[14] "Universality classes and crossover behaviors in non-Abelian directed sandpiles",
H.-H. Jo and M. Ha **[Physical Review E 82,** 041101 **(2010)]**
[13] "Critical behavior of Ising model in annealed scale-free networks",
S.H. Lee, M. Ha, H. Jeong, J.D. Noh, and H. Park **[Physical Review E 80,** 051127 **(2009)]**
[12] "Instability transitions and ensemble equivalence in diffusive flow",
M. Ha **[Central European Journal of Physics 7,** 575 **(2009)]**

[11] "Anomalous scaling behavior in polymer thin film growth by vapor deposition",
S.-W. Son, M. Ha, and H. Jeong **[Journal of Statistical Mechanics (2009) P**02031**]**

[10] "Relevance of Abelian Symmetry and Stochasticity in Directed Sandpiles",
H.-H. Jo, and M. Ha **[Physical Review Letters 101,** 218001 **(2008)]**

[9] "Boundary-induced abrupt transition in the symmetric exclusion process",
A.Nagar, M. Ha, and H. Park **[Physical Review E 77,** 061118 **(2008)]**

[8] "Dynamic instability transitions in 1D driven diffusive flow with nonlocal hopping",
M. Ha, H. Park, and M. den Nijs **[Physical Review E 75,** 061131 **(2007)]**

[7] "Finite-Size Scaling in Complex Networks",
H. Hong, M. Ha, and H. Park **[Physical Review Letters 98,** 258701 **(2007)]**

[6] Comment on ``Non-Mean-Field Behavior of the Contact Process on Scale-Free Networks",
M. Ha, H. Hong, and H. Park **[Physical Review Letters 98,** 029801 **(2007)]**
Virtual Journal of Biological Physics Research 13, issue 2 (2007).

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[5] "Queuing transitions in the asymmetric simple exclusion process",
M. Ha, J. Timonen, and M. den Nijs **[Physical Review E 68,** 056122 **(2003)]**

[4] "Effect of a columnar defect on the shape of slow-combustion fronts",
M. Myllys, J. Maunuksela, J. Merikoski, J. Timonen, V.K. Horváth, M. Ha, and M. den Nijs
[Physical Review E 68, 051103 **(2003)]**

[3] "Macroscopic car condensation in a parking garage",
M. Ha, and M. den Nijs **[Physical Review E 66,** 036118 **(2002)]**

[2] "Particle dynamics in a mass-conserving coalescence process",
M. Ha, H. Park, and M. den Nijs **[Journal of Physics A 32, L**495 **(1999)]**

[1] "Exact solutions of a restricted ballistic deposition model on a 1D staircase",
H. Park, M. Ha, and I.-M. Kim **[Physical Review E 51,** 1047 **(1995)]**

Ongoing/Pending Projects

[2] "Population dynamics of free antimicrobial peptides (AMPs) and growing bacteria",
M. Ha, Y. Jung, and B.-Y. Ha

[1] "Universality class of (2+1)-d polymer thin film growth by vapor deposition",
S.-W. Son, M. Ha, I.J. Lee, and H. Jeong

List of Presentations

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International: Invited & Contributed Talks (37 international talk only shown here)

37. APCTP Workshop: Roles of Heterogeneity in Non-equilibrium collective dynamics
(RHINO 2019) at APCTP Headquarter, Pohang, Korea
[07/15-17, 2019]: "Role of Heterogeneity in epidemic processes".

36. XXVI Sitges Conference on Statistical Mechanics: New Trends in Statistical Physics
(50th years of the Sitges Conference) at Hotel Calipolis, Sitges, Sweden
[05/27-31, 2019]: "Mixed-Order Transitions in the GEP".

35. The 7th International Conference on Complex Networks and Their Applications:
COMPLEX NETWORKS 2018 at University of Cambridge, Cambridge, United Kingdom
[12/11-13, 2018]: "Interplay of hubs and cooperation in social contagion".

34. New Trends in Nonequilibrium Statistical Mechanics: Classical and Quantum Systems (nesmcq18)
at Ettore Majorana Centre for Scientific Culture, Erice, Italy
[07/23-21, 2018]: "Role of Localized Defect in 1D Driven Diffusive Flow".

33. The 8th KIAS Conference on Statistical Physics (NSPCS 2018) at KIAS, Seoul, Korea
[07/09-12, 2018]: "Universal Properties of Complex Contagions".
32. BIFI International Conference 2018: Complexity, Networks, and Collective Behavior
at Patio de la Infanta, Zaragoza, Spain
[02/06-08, 2018]: "Role of Structural Heterogeneity in Generalized Epidemic Process".
31. The 9th International Conference of Nonlinear Science: Dynamic Days Asia Pacific 9 (DDAP9)
at Hong Kong Baptist University, Hong Kong, China
[12/14-17, 2016]: "Relevance of columnar defect in KPZ growing interface".
30. STATPHYS26 at Lyon, France [07/18-22, 2016]: "Cooperative Effects on Epidemic Dynamics".
29. The 7th KIAS Conference on Statistical Physics (NSPCS 2016) at KIAS, Seoul, Korea
[07/04-07, 2016]: "Role of Bias in Generalized Contact Process".
28. International School and Conference on Networks Science (NetSci 2016) at K-Hotel, Seoul, Korea
[05/30-06/03, 2016]: "Dynamic Scaling in Synchronization of Coupled Oscillators on Complex Networks"
27. DYCOSC15 - International Workshop on Dynamics of Coupled Oscillators:
40 years of the Kuramoto Model at MPIPKS, Dresden, Germany
[07/27-31, 2015]: "Dynamic scaling and universality class in synchronization".
26. The 113th Statistical Mechanics Conference at Rutgers University, New Brunswick, NJ, U.S.A.
[05/10-12, 2015]: "Universality Class of GEP on Modular Networks" (short talk).
25. STATPHYS25 at Seoul, Korea
[07/22-26, 2013]: "Dynamic finite-size scaling and universality issues in synchronization".
24. Patterns & waves in populations of cells and active particles:
Satellite Meeting of STATPHYS25 at Korea University, Seoul
[07/19-20, 2013]: "Time Evolution of Phase Synchronization in Coupled Oscillators".
23. The APS 2013 March Meeting, Baltimore, MD, U.S.A.
[03/18-22, 2013]: "Dynamic Scaling of Synchronization in Kuramoto-type Globally Coupled Oscillators".
22. Workshop on the Open Problems of the Glass Transition and Related Topics,
Kyushu University Nishi-Jin Plaza, Fukuoka, Japan
[12/16-20, 2012]: "Glassy Behaviors in Random Constraint Satisfaction Problems".
21. The 7th International Conference of Nonlinear Science: Dynamic Days Asia Pacific 7 (DDAP7)
and the 11th Taiwan International Symposium on Statistical Physics at Academia Sinica, Taipei, Taiwan
[08/06-09, 2012]: "Applications of Absorbing Phase Transitions in Random Networks".
20. 2012 - 25th Annual Workshop of Center for Simulational Physics at University of Georgia:
Recent Developments in Computer Simulational Studies in Condensed Matter Physics, Athens, GA, U.S.A.
[02/20-24, 2012]: "Kinetic Roughening in Polymer Thin Film Growth".
19. Feza Gürsey Institute – Imperial College
International Summer School and research workshop on Complexity, Istanbul, Turkey
[09/05-10, 2011]: "Q-Coloring Problems in Complex Networks".
18. The 105th Statistical Mechanics Conference at Rutgers University, New Brunswick, NJ, U.S.A.
[05/08-10, 2011]: "Contact Process with Long-term Memory and Branching Bias" (short talk).
17. APCTP Workshop on Current Progress of Simulations in Complex Systems
at APCTP headquarters, Pohang, Korea
[11/15-17, 2010 (invited)]: "Critical Behaviors of Stochastic-Local-Search Algorithms in Random CSPs".
16. The 4th KIAS Conference on Statistical Physics (NSPCS 2010):
Satellite Meeting of STATPHYS24 at KIAS, Seoul, Korea
[07/26-29, 2010]: "Finite-Size Effects on Critical Behaviors in Random *K*-SAT".
15. STATPHYS24 at Cairns, Australia
[07/18-23, 2010]: "Universality Class of Polymer Thin Film Growth in (1+1) and (2+1) dimensions".

14. New Frontiers in Complex Networks (NFCN 2010):
STATPHYS24 satellite meeting at SNU, Seoul, Korea
[07/12-16, 2010 (invited)]: “Critical behaviors in random constraint satisfaction problems”.
13. International Workshop on Statistical Physics and Computer Science (SPCS 2010):
Satellite Meeting of STATPHYS24 at KITPC, Beijing, China
[07/08-11, 2010]: “Phase transitions and critical behaviors in random k-satisfiability problems”.
12. The APS 2010 March Meeting, Portland, OR, U.S.A.
[03/15-19, 2010]: “Finite-Size Scaling (FSS) in Random *K*-Satisfiability Problems (K-SAT)".
11. APCTP Symposium on Fields of Special Interests in Theoretical Physics at APCTP Headquarters, Pohang
[11/30-12/01, 2009 (invited)]: “Critical Phenomena in Critical Phenomena: Universality Perspective”.
10. The 6th APCTP-KIAS Winter School on Statistical Physics at POSCO International Center, POSTECH, Pohang
[02/04-06, 2009 (invited)]:
“Why is Asymmetric Simple Exclusion Process still so popular? Not a just toy model?”.
9. International Conference on Complex Networks: *The Past 10 Years and Future* at SNU, Seoul
[12/19-22, 2008]: “Numerical Study of Statistical Models on Scale-Free Networks with Size-Dependent Cutoff”.
8. The 5th International Conference of Nonlinear Science: Dynamic Days Asia Pacific 5 (DDAP5)
at Nara Prefectural New Public Hall, Nara, Japan
[09/09-12, 2008]: “Anomalous scaling behavior in polymer thin film growth”.
7. SigmaPhi2008 at Orthodox Academy of Crete, Kolympari-Chania, Greece
[07/14-18, 2008]: “Instability transition and ensemble equivalence in diffusive flow”.
6. The "Physics in Distributed Information Systems" (PhysDIS) workshop at NORDITA, Stockholm, Sweden
[05/15-17, 2008 (invited talk)]: “FSS in complex networks”.
5. The 10th Asia Pacific Physics Conference (APPC10)
at POSCO International Center, POSTECH, Pohang, Korea
[08/21-24, 2007]: “Dynamic behavior of 1D driven diffusive flow with nonlocal hopping”.
4. The 4th International Conference of Nonlinear Science: Dynamic Days Asia Pacific 4 (DDAP4)
at POSTECH, Pohang, Korea
[07/12-14, 2006]: “FSS in complex networks”.
3. The 2nd KIAS Conference on Statistical Physics (NSPCS06) at KIAS, Seoul, Korea
[07/03-06, 2006 (invited)]: “FSS in complex networks”.
2. The 89th Statistical Mechanics Conference at Rutgers University, New Brunswick, NJ, U.S.A.
[05/18-20, 2003]: “Queuing transitions in 1D drive flow due to an obstruction” (short talk).
1. The APS 2001 March Meeting, Seattle, WA, U.S.A. [03/12-16, 2001]:
“Dynamic analogue of Bose condensation in a traffic model with a parking garage”.

Domestic: Invited & Contributed Talks (40 domestic talk only shown here)

40. The KPS 2020 Fall Virtual Meeting, Korea
[11/04-06, 2020]: “Universal scaling behaviors of epidemic models near the criticality”.
39. STATPHYS Monthly Meeting sponsored by APCTP Topical Program
on "Statistical Physics of Disordered, Non-equilibrium and Complex Systems" at KIAS, Seoul, Korea
[05/18, 2019]: “Phase Transitions and/or Crossover Scaling Behaviors”.
38. Gwangju-Chonnam KPS 2018 Annual Meeting at Chonnam National University, Gwangju, Korea
[12/20, 2018 (invited)]: “Mixed-Order Transitions in Spread of Behavior”.
37. The KPS 2018 Fall Meeting at CECO, Changwon, Korea
[10/24-26, 2018 (invited)]: “Effects of the threshold for cooperation on social contagions”
36. The KPS 2018 Spring Meeting at DCC, Daejeon, Korea
[04/25-27, 2018]: “Cutoff-dependent finite-size scaling in scale-free networks”.

35. Gwangju-Chonnam KPS 2017 Annual Meeting at Chonnam National University, Gwangju, Korea
[12/21, 2017]: “Dynamic Scaling in Activity-Driven Temporal Networks”.
34. STATPHYS Monthly Meeting sponsored by APCTP Topical Program
on "Statistical Physics of Disordered, Non-equilibrium and Complex Systems" at KIAS, Seoul, Korea
[12/09, 2017]: “Particle-jamming and hole-condensation in 1D driven flow”.
33. The KPS 2017 Spring Meeting at DCC, Daejeon, Korea
[04/19-21, 2017]: “Finite-size scaling of the slow-bond problem of TASEP”.
32. Gwangju-Chonnam KPS 2015 Annual Meeting at Chosun University, Gwangju, Korea
[12/22, 2015 (invited)]: “Extended Finite-Size Scaling in Epidemic Models”.
31. The KPS 2015 Fall Meeting at HICO, Gyeongju, Korea
[10/21-23, 2015)]: “Generalized Epidemic Process on Scale-Free Networks” (designated speaker).
30. Gwangju-Chonnam KPS 2014 Annual Meeting at Chonnam National University, Gwangju, Korea
[12/23, 2014]: “Phase Transitions in Generalized Epidemic Process”.
29. The KPS 2014 Fall Meeting at KDJCC, Gwangju, Korea
[10/22-24, 2014]: “Finite-Size Scaling in the KPZ-related Sign Phase Transition”.
28. STATPHYS Monthly Meeting sponsored by APCTP Topical Program
on "Statistical Physics of Disordered, Non-equilibrium and Complex Systems" at KIAS, Seoul, Korea
[06/21, 2014]: “Role of Disorder in Critical Behaviors of Nonequilibrium Processes”.
27. The 4th Workshop on Non-Equilibrium Fluctuation Theorem at SEACLOUD Hotel, Busan, Korea
[01/12-14, 2014]: Review on “Entropy production and fluctuation relations for a KPZ interface”.
26. Gwangju-Chonnam KPS 2013 Annual Meeting at Chonnam National University, Gwangju, Korea
[12/17, 2013]: “Dynamic Scaling in Polymer Thin Film Growth”.
25. The KPS 2013 Spring Meeting at DCC, Daejeon, Korea
[04/24-26, 2013]: “Dynamic Scaling in Time Evolution of Phase Synchronized Oscillators”.
24. Gwangju-Chonnam KPS 2012 Annual Meeting at Chosun University, Gwangju, Korea
[12/14, 2012 (invited)]: “How to Solve Random Constraint Satisfaction Problems using SLS Algorithms”.
23. The 2nd Workshop on Non-Equilibrium Fluctuation Theorems at SEACLOUD Hotel, Busan, Korea
[05/18-19, 2012]: “Dynamic scaling of synchronized oscillation”.
22. The KPS 2012 Spring Meeting at DCC, Daejeon, Korea
[04/25-27, 2012]: “Totally Asymmetric Simple Exclusion Process with a Quenched Slow Bond”
21. Gwangju-Chonnam KPS 2011 Annual Meeting at Chonnam National University, Gwangju, Korea
[12/16, 2011 (invited)]: “Synchronization Phase Transitions in Globally Coupled Oscillators”.
20. The KPS 2011 Fall Meeting at BEXCO, Busan, Korea
[10/19-21, 2011]: “Revisited Finite-Size Scaling in Complex Networks”.
19. The KPS 2011 Spring Meeting at DCC, Daejeon, Korea
[04/13-15, 2011 (invited)]: “Role of Memory in Contact Process”.
18. The KPS 2010 Fall Meeting at Phoenix Park, Pyeongchang, Korea
[10/20-22, 2010]: “Critical Behavior of Q-Coloring in Random Networks”.
17. The KPS 2010 Spring Meeting at DCC, Daejeon, Korea
[04/21-23, 2010 (invited, Yong-Bong Prize)]:
“Phase Transitions and Critical Behaviors in Random Constraint Satisfaction Problems”.
16. Winter School on Algorithms and Combinatorics 2010 at Hongik International Center, Chochiwon, Korea
[01/11-13, 2010]: “Finite-Size Scaling in Random k-Satisfiability Problems”.
15. The KPS 2009 Fall Meeting at CECO, Changwon, Korea
[10/22-23, 2009]: “Finite-Size Scaling in Random k-Satisfiability Problems”.
14. The 15th Workshop of STATPHYS 2009 at Konjiam Resort, Gwangju, Korea
[08/12-14, 2009]: “Intermittency studies and multifractality in (1+1)-d surface growth”.

13. The 24th MDRG Workshop at Mt. Jangtae Resort, Daejeon, Korea
[06/25-26, 2009]: “Anomalous scaling behavior in polymer thin film growth by vapor deposition”.
12. The KPS 2009 Spring Meeting at DCC, Daejeon, Korea
[04/23-24, 2009]: “Critical behavior of Ising model in annealed SFNs”.
11. The KPS 2008 Fall Meeting at KimDaeJung Convention Center, Gwangju, Korea
[10/23-24, 2008]: “Driven contact process with a long-term memory”.
10. The KPS 2008 Spring Meeting at DCC, Daejeon, Korea
[04/17-18, 2008]: “Boundary induced abrupt transitions in symmetric exclusion process”.
9. The KPS 2007 Fall Meeting at Jeju ICC, Jeju, Korea
[10/18-19, 2007]: “Nonequilibrium phase transitions in the annealed version of SFNs”.
8. The 14th Workshop for STATPHYS 2007 at Naminara Hotel, Chunchon, Korea
[08/16-18, 2007]: “Heterogeneous MF behaviors of the CP on the random neighbors version of SFNs”.
7. The KPS 2007 Spring Meeting at Phoenix Park, Pyeongchang, Korea
[04/19-20, 2007]: “Spatial correlations and extended self-similarity in sandpiles”.
6. The KPS 2006 Fall Meeting at EXCO, Daegu, Korea
[10/19-20, 2006 (invited)]: “Critical behavior of the contact process on complex networks”.
5. Fall Workshop of Research Institute of Physics & Chemistry at Chonbuk National University, Jeonju, Korea
[09/08, 2006 (invited)]: “Mean-field behavior of the contact process on complex networks”.
4. APCTP Extended Monthly Meeting at Pukyong National University, Busan, Korea
[08/19-20, 2004 (invited)]: “Instability threshold in a 1D driven diffusive system”.
3. The KPS 2004 Spring Meeting at Sungkyunkwan University, Suwon, Korea
[04/23-24, 2004]: “Instability threshold in a 1D driven diffusive system: ASEP with nonlocal hopping”.
2. The 12th Workshop of Thermal and STATPHYS 2003 at Sooahnbo, Korea
[08/19-21, 2003]: “Queuing transitions in the ASEP”.
1. The KPS 1994 Spring Meeting at Inha University, Inchon, Korea
[04/22-23, 1994]: “A restricted ballistic deposition model on a 1D staircase”.

Colloquia/seminars

16. Special Lecture for Professional Career and Job Expo at Daedeok Middle School, Daejeon, Korea
[07/10, 2019]: "Why does Quantum Mechanics become popular in movies?".
15. Special Lecture for Professional Career and Job Expo at Daedeok Middle School, Daejeon, Korea
[07/11, 2018]: "What is physics? Could being physicist is a job for living?".
14. Physics Colloquium at Chonnam National University, Gwangju, Korea
[11/20, 2014]: "More is either Different or the Same:
Condensed-Matter Physics vs. Statistical Physics, Universality of Complex Systems".
13. Selected Program Seminar at Chosun Woman High School, Gwangju, Korea
[12/12, 2012]: "False and True in Physics: Merits of Woman Physicists".
12. Physics Seminar at Seoul National University, Seoul, Korea
[03/23, 2012]: "Dynamic Scaling in Globally-Coupled Kuramoto Oscillators".
11. Physics Seminar at University of Suwon, Suwon, Korea
[05/20, 2010]: "How to Understand Critical Behavior in Complex Systems?".
10. HYKE Seminar at Seoul National University, Seoul, Korea
[05/07, 2010]: "Phase Transitions and Universality Classes in Complex Systems".
9. Physics Colloquium at Inha University, Inchon, Korea
[10/16, 2008]: "Simple physical model studies for complex systems and statistical physics".
8. The PhysDIS Program (05/05-31) Seminar at NORDITA, Stockholm, Sweden
[05/28, 2008]: "Instability transitions and ensemble equivalence in diffusive flow".

7. Condensed-Matter Physics Seminar at Soongsil University, Seoul, Korea
[12/18, 2007]: "Kinetic roughening and multifractality in vapor deposition polymerization growth".
6. Physics Colloquium at Chonbuk National University, Jeonju, Korea
[09/28, 2006]: "Complexity and criticality in nonequilibrium systems"
5. The 2nd APCTP-KIAS Winter School on Statistical Physics at Phoenix Park, Pyeongchang, Korea
[1/18-21, 2005 (lecture-type seminar)]: "ASEP: an overview & some recent developments".
4. ABRL Physics Seminar at Seoul National University, Seoul, Korea
[12/03, 2004]: "Queuing transitions in 1D driven flow".
3. Condensed-Matter Physics Seminar at Soongsil University, Seoul, Korea
[02/03, 2004]: "Nonequilibrium phase transitions in 1D driven diffusive systems".
2. Physics Colloquium at Inha University, Inchon, Korea
[11/27, 2003]: "Phase transitions in 1D nonequilibrium driven systems".
1. Condensed-Matter Seminar at KIAS, Seoul, Korea
[01/20, 2003]: "ASEP with a site defect".

Contributed posters (23 international poster presentations only shown here)

23. APCTP-KIAS Workshop on "Motors and Engines"
[06/25-27, 2018]: "One-dimensional TASEP with a slow bond".
22. Dynamics Days 2018 - International conference on chaos and nonlinear dynamics
at Hilton City Center, Denver, U.S.A.
[01/04-06, 2018]: "Universal Scaling Properties of Cooperative Contagion with Structural Heterogeneity".
21. Yukawa International Seminar 2015 (YKIS2015)
- New Frontiers in Non-equilibrium Statistical Physics 2015 at YITP, Kyoto, Japan
[08/17-19, 2015]: "Dynamic Scaling Analysis in Random Constraint Satisfaction Problems".
20. Japan-France Joint Seminar
- New Frontiers in Non-equilibrium Physics of Glassy Materials at YITP, Kyoto, Japan
[08/11-14, 2015]: "Dynamic Scaling Analysis in Random Constraint Satisfaction Problems".
19. YITP workshop Interface fluctuations and KPZ universality class
- unifying mathematical, theoretical, and experimental approaches at YITP, Kyoto, Japan
[08/20-23, 2014]: "Dynamic phase transition by coupling Ising spins to KPZ-type surface growth".
18. The 6th KIAS Conference on Statistical Physics (NSPCS12) at KIAS, Seoul, Korea [07/08-10, 2014]:
"Synchronization in Kuramoto Coupled Oscillators: From Dynamic Scaling to Transition Nature".
17. The 5th YSM-SPIP Frontier of Statistical Physics and Information Processing (FSPIP2013):
Perspectives from Nonequibrium Behaviors - Satellite Meeting of STATPHYS25 at YITP, Kyoto, Japan
[07/11-14, 2013]: "Extended finite-size scaling in the Kuramoto model".
16. The 5th KIAS Conference on Statistical Physics (NSPCS12) at KIAS, Seoul, Korea
[07/03-06, 2012]: "Dynamic Scaling in Synchronization Transition of Coupled Oscillators".
15. International Seminar on Large Fluctuations in Non-Equilibrium Systems (LAFNES11),
at MPIPKS, Dresden, Germany
[07/04-15, 2011]: "Contact process with power-law type feedbacks".
14. International Seminar on Many-Body Systems Far From Equilibrium (MBSFFE09),
Fluctuations, Slow Dynamics, and Long-Range Interactions at MPIPKS, Dresden, Germany
[02/16-27, 2009]: "Anomalous scaling behavior in polymer thin film growth by vapor deposition".
13. SigmaPhi2008 at Orthodox Academy of Crete, Kolympari - Chania, Greece
[07/14-18, 2008]: "Anomalous scaling behavior in polymer thin film growth".
12. The 3rd KIAS Conference on Statistical Physics (NSPCS08) at KIAS, Seoul, Korea
[07/01-04, 2008]: "Instability transition and ensemble equivalence in diffusive flow".

11. STATPHYS23 at Genova, Italy [07/09-13, 2007]: "Finite-size scaling in complex networks".
10. Satellite Meeting of before STATPHYS23:
STATICS AND DYNAMICS OF GRANULAR MEDIA AND COLLOIDAL SUSPENSIONS, at Napoli, Italy [07/04-06, 2007]: "Dynamic instability transitions in 1D driven diffusive flow with nonlocal hopping".
9. International Conference on the Frontiers of Nonlinear and Complex Systems at Hong Kong Baptist University, Hong Kong, China [05/24-26, 2006]: "FSS in complex networks".
8. The Issac Newton Institute School on *Non-Equilibrium Dynamics of Interacting Particle Systems* (PDSW02) at the INI, Cambridge, U.K. [03/27-04/07, 2006]: "Queuing transitions in the ASEP".
7. STATPHYS22 at Bangalore, India [07/03-11, 2004]: "ASEP with nonlocal hopping".
6. Satellite Meeting of before STATPHYS22:
Nonequilibrium Statistical Physics of Complex Systems (NSPCS04) at KIAS, Seoul, Korea [06/29-07/02, 2004]: "Instability threshold in a 1D driven diffusive system".
5. NESTPHY03-MPIPKS International Seminar at MPIPKS, Dresden, Germany [09/20-10/10, 2003]: "Queuing transitions in the ASEP".
4. The 2nd Networking Day of Physics Career Development Organization at the University of Washington, Seattle, WA, U.S.A. [01/30, 2003]: "The effect of a columnar defect on slow combustion of papers".
3. The 6th APCTP Winter School on *Scaling and Phase Transitions in Complex Networks and Nonequilibrium Systems* at POSTECH, Pohang, Korea [02/18-21, 2002]: "Macroscopic car condensation in a parking garage".
2. Fundamental Problems of Statistical Physics X (FPSPX) at Altenberg, Germany [08/20-09/01, 2001]: "Dynamic analogue of Bose condensation in a traffic model with a parking garage"
1. The 4th CTP Workshop on Statistical Physics at Seoul National University, Seoul, Korea [01/27-31, 1997]: "Dynamic behaviors of 1D anchored interfaces".

Contributed Articles

9. "Spatial Correlations and Extended Self-Similarity Properties"
New Physics: Sae Mulli HIGHLIGHTS, PHYSICS & HIGH TECHNOLOGY
Vol. 24, No. 12 December, 2015.
8. "Fundamental Structural Constraint of Random Scale-Free Networks"
Most Recent Research Review, PHYSICS & HIGH TECHNOLOGY
Vol. 22, No. 1/2 January/February, 2013 (coauthor: Yongjoo Baek).
7. "Numerical Study of Synchronization in the Kuramoto Model with Finite Inertia"
New Physics: Sae Mulli HIGHLIGHTS, PHYSICS & HIGH TECHNOLOGY
Vol. 21, No. 11 November, 2012 (coauthor: Chulho Choi).
6. "Professor Column", Chosun University News, Vol. 198, January 2012.
5. "Relevance of Abelian Symmetry and Stochasticity in Directed Sandpiles"
Most Recent Research Review, PHYSICS & HIGH TECHNOLOGY
Vol. 18, No. 1/2 January/February, 2009 (coauthor: Hang-Hyun Jo).
4. "International Conference on the Frontiers on Nonlinear and Complex Systems"
WE HERE THAT, APCTP Bulletin, Vol. 9, No. 1/2, Jan. - Dec. 2006.
3. "Farewell Essay", KIAS Newsletter, No. 33, Winter 2006.
2. "STATPHYS22: 22nd International Conference on Statistical Physics of IUPAP"
Conference Participation Report, PHYSICS & HIGH TECHNOLOGY
Vol. 13, No. 9, September, 2004.
1. "KIAS-APCTP Satellite Meeting and India Main Meeting of STATPHYS22"
Conference Report, KIAS Newsletter, No. 25, Autumn 2004 (coauthor: Su-Chan Park).