

CURRICULUM VITAE

HYUNGGYU PARK

Personal Data

Date of birth: November 27, 1956
Place of birth: Seoul, Korea
Citizenship: Korean
Address: Quantum Universe Center (QUC)
Korea Institute for Advanced Study (KIAS)
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Education and Professional Career

2022 - present QUC distinguished professor, Quantum Universe Center, KIAS
2002 - 2022 Professor, School of Physics, KIAS
2020 - 2021 Vice President, KIAS
2015 - 2017 Director of Quantum Universe Center, KIAS
2010 - 2012 Member of Basic Research Promotion Commission, National Science & Technology Council
2010 - 2012 Review Board Member, National Research Foundation of Korea
2009 - 2010 Visiting Professor, Department of Physics, University of Washington
2008 - 2009 Vice President, KIAS
2007 - 2007 Dean of Faculty, KIAS
2007 - 2009 Program Manager, Korea Research Foundation
2006 - 2008 Chair of Statistical Division of the Korean Physical Society
2003 - 2006 Chair of School of Physics and Steering Committee Member of KIAS
2001 - 2002 Professor, Department of Physics, Inha University
1999 - 2001 Chair of Department of Physics, Inha University
1998 - 1999 Visiting Scientist, Department of Physics, University of Washington
1996 - 2001 Associate Professor, Department of Physics, Inha University
1992 - 1996 Assistant Professor, Department of Physics, Inha University
1990 - 1992 Research Associate, Department of Physics, Boston University (with Sidney Redner)
1988 - 1990 Postdoctoral Research Associate, Department of Physics, Carnegie Mellon University
(with Michael Widom)
1983 - 1988 Department of Physics, University of Washington, USA (PhD)
Universal finite-size-scaling amplitudes in two dimensional critical phenomena
(advisor: Marcel den Nijs)
1982 - 1983 Department of Physics, University of California at Santa Cruz
1981 - 1982 military service (Korean army)
1979 - 1981 Department of Physics, Seoul National University, Korea (MS)
Renormalization group approach to Dyson's hierarchical model
(advisor: Koo Chul Lee and Doochul Kim)
1975 - 1979 Department of Physics, Seoul National University, Korea (BS)

Awards and Prizes

- 2016 Seong-bong Physics (Grand Science) award from the Korean Physical Society
- 2008 Haksul (Science) award from the Korean Physical Society
- 1986 Joseph H. Weis Prize at University of Washington

Research Interests

- Thermodynamic uncertainty relations
- Thermodynamics and information theory in quantum systems
- Stochastic and information thermodynamics, nonequilibrium fluctuation theorems, active matter
- Heat, information, active, and quantum engines, molecular motors
- percolation, networks, traffic flows
- Reaction diffusion systems and absorbing phase transitions
- Synchronization and entrainment
- Random walks, crystal growth, localization problems
- Self-organized criticality and Science of complexity
- Quasicrystals and incommensurate systems
- Finite size scaling and conformal field theory
- Phase transitions and critical phenomena

Publications (SCI)

1. *Thermodynamic trade-off relation for first passage time in resetting process*
P. S. Pal, Arnab Pal, Hyunggyu Park, and Jae Sung Lee
arXiv:2305.04562 (2023) (submitted to Phys. Rev. E).
2. *Swarmalators with thermal noise*
Hyunsuk Hong, Kevin O’Keeffe, Jae Sung Lee, and Hyunggyu Park
arXiv:2302.11820 (2023) (to appear in Phys. Rev. Research).
3. *Multidimensional entropic bound: Estimator of entropy production for Langevin dynamics with an arbitrary time-dependent protocol*
Sangyun Lee, Dong-Kyum Kim, Jong-Min Park, Won-kyu Kim, Hyunggyu Park, and Jae Sung Lee
Phys. Rev. Research **5**, 013194 (2023).
4. *Speed limit for a highly irreversible process and tight finite-time Landauer’s bound*
Jae Sung Lee, Sangyun Lee, Hyukjoon Kwon, and Hyunggyu Park
Phys. Rev. Lett. **129**, 120603 (2022).
5. *Coherence enhanced quantum-dot heat engine*
Jaegon Um, Konstantin Dorfman, and Hyunggyu Park
Phys. Rev. Research **4**, L032034 (2022).
6. *Effects of the non-Markovianity and non-Gaussianity of active environmental noises on engine performance*
Jae Sung Lee and Hyunggyu Park
Phys. Rev. E **105**, 024130 (2022).
7. *Self-repelling bi-exploration process*
Hor Dashti-Naserabadi, M. N. Najafi, and Hyunggyu Park
Phys. Rev. E **104**, 054135 (2021).
8. *Universal form of thermodynamic uncertainty relation for Langevin dynamics*
Jae Sung Lee, Jong-Min Park, and Hyunggyu Park
Phys. Rev. E **104**, L052102 (2021).
9. *Thermodynamic uncertainty relation in the overdamped limit with a magnetic Lorentz force*
Jong-Min Park and Hyunggyu Park
Phys. Rev. Research **3**, 043005 (2021).
10. *Geometry-induced rectification for an active object*
Jae Sung Lee, Jong-Min Park, Jae Dong Noh, and Hyunggyu Park
Phys. Rev. Research **3**, L042011 (2021).
11. *Brownian heat engine with active reservoirs*
Jae Sung Lee, Jong-Min Park, and Hyunggyu Park
Phys. Rev. E **102**, 032116 (2020).

12. *Thermodynamic cost of synchronizing a population of beating cilia*
Hyunsuk Hong, Junghyo Jo, Changbong Hyeon, and Hyunggyu Park
J. Stat. Mech. 074001 (2020).
13. *Exactly solvable two-terminal heat engine with asymmetric Onsager coefficients: Origin of the power-efficiency bound*
Jae Sung Lee, Jong-Min Park, Hyun-Myung Chun, Jaegon Um, and Hyunggyu Park
Phys. Rev. E **101**, 052132 (2020).
14. *Active microrheology of a bulk metallic glass*
Ji Woong Yu, S. H. E. Rahbari, Takeshi Kawasaki, Hyunggyu Park, and Won Bo Lee
Science Advances **6**, eaba8766 (2020).
15. *Two-dimensional super-roughening in three-dimensional Ising model*
Hor Dashti-Naserabadi, Abbas Ali Saberi, S. H. E. Rahbari, and Hyunggyu Park
Phys. Rev. E **100**, 060101(R) (2019).
16. *Thermodynamic uncertainty relation for underdamped Langevin systems driven by a velocity-dependent force*
Jae Sung Lee, Jong-Min Park, and Hyunggyu Park
Phys. Rev. E **100**, 062132 (2019).
17. *Carnot efficiency and zero-entropy production rate do not guarantee reversibility of a process*
Jae Sung Lee, Sang Hoon Lee, Jaegon Um, and Hyunggyu Park
JKPS **75**, 948 (2019).
18. *Three heats in strongly coupled system and bath*
Chulan Kwon, Jaegon Um, Joonhyun Yeo, and Hyunggyu Park
Phys. Rev. E **100**, 052127 (2019).
19. *Characterizing the nature of the rigidity transition*
S. H. E. Rahbari, J. Vollmer, and Hyunggyu Park
Phys. Rev. E **98**, 052905 (2018).
20. *Nonuniversality of heat-engine efficiency at maximum power*
Sang Hoon Lee, Jaegon Um, and Hyunggyu Park
Phys. Rev. E **98**, 052137 (2018).
21. *Stochastic thermodynamics and hierarchy of fluctuation theorems with multiple reservoirs*
Jae Sung Lee and Hyunggyu Park
New J. Phys. **20**, 083010 (2018).
22. *Additivity of multiple heat reservoirs in the Langevin equation*
Jae Sung Lee and Hyunggyu Park
Phys. Rev. E **97**, 062135 (2018).
23. *Entropy and Thermodynamic Second Laws: New Perspective - Stochastic Thermodynamics and Fluctuation Theorems*
Hyunggyu Park
JKPS **72**, 1413 (2018).

24. *Carnot efficiency is reachable in an irreversible process*
Jae Sung Lee and Hyunggyu Park
Sci. Rep. **7**, 10725 (2017).
25. *Nonequilibrium steady states in Langevin thermal systems*
Hyun Keun Lee, Sourabh Lahiri, and Hyunggyu Park
Phys. Rev. E **96**, 022134 (2017).
26. *Characterizing rare fluctuations in soft particulate flows*
S. H. E. Rahbari, A. A. Saberi, Hyunggyu Park, and J. Vollmer
Nature Comm. **8**, 11 (2017).
27. *Information thermodynamics for a multi-feedback process with time delay*
Chulan Kwon, Jaegon Um, and Hyunggyu Park
EPL **117**, 10011 (2017).
28. *Housekeeping entropy in continuous stochastic dynamics with odd-parity variables*
Joonhyun Yeo, Chulan Kwon, Hyun Keun Lee, and Hyunggyu Park
J. Stat. Mech. 093205 (2016).
29. *Unconventional entropy production in the presence of momentum-dependent forces*
Chulan Kwon, Joonhyun Yeo, Hyun Keun Lee, and Hyunggyu Park
JKPS **68**, 633 (2016).
30. *Finite-size scaling, dynamic fluctuations, and hyperscaling in the Kuramoto model*
Hyunsuk Hong, Hugues Chate, Lei-Han Tang, and Hyunggyu Park
Phys. Rev. E **92**, 022122 (2015).
31. *Total cost of operating an information engine*
Jaegon Um, Haye Hinrichsen, Chulan Kwon, and Hyunggyu Park
New J. Phys. **17**, 085001 (2015).
32. *Overdamped limit and inverse-friction expansion for Brownian motion in an inhomogeneous media*
Xavier Durang, Chulan Kwon, and Hyunggyu Park
Phys. Rev. E **91**, 062118 (2015).
33. *Heat fluctuations and initial ensembles*
Kwangmoo Kim, Chulan Kwon, and Hyunggyu Park
Phys. Rev. E **90**, 032117 (2014).
34. *Nature of synchronization transitions in random networks of coupled oscillators*
Jaegon Um, Hyunsuk Hong, and Hyunggyu Park
Phys. Rev. E **89**, 012810 (2014).
35. *Statistical mechanics of the coagulation-diffusion process with a stochastic reset*
Xavier Durang, Malte Henkel, and Hyunggyu Park
J. Phys. A **47**, 045002 (2014).

36. *Modified saddle-point integral near singularity for the large deviation function*
Jae Sung Lee, Chulan Kwon, and Hyunggyu Park
J. Stat. Mech. P11002 (2013).
37. *Work fluctuations in a time-dependent harmonic potential: rigorous results and beyond the over-damped limit*
Chulan Kwon, Jae Dong Noh, and Hyunggyu Park
Phys. Rev. E **88**, 062102 (2013).
38. *Multiple dynamic transitions in nonequilibrium work fluctuations*
Jae Dong Noh, Chulan Kwon, and Hyunggyu Park
Phys. Rev. Lett. **111**, 130601 (2013).
39. *Link-disorder fluctuation effects on synchronization in random networks*
Hyunsuk Hong, Jaegon Um, and Hyunggyu Park
Phys. Rev. E **87**, 042105 (2013).
40. *Everlasting initial memory threshold for rare events in equilibration processes*
J. S. Lee, Chulan Kwon, and Hyunggyu Park
Phys. Rev. E **87**, 020104(R) (2013).
41. *Fluctuation theorems and entropy production with odd-parity variables*
Hyun Keun Lee, Chulan Kwon, and Hyunggyu Park
Phys. Rev. Lett. **110**, 050602 (2013).
42. *Entanglement versus mutual information in quantum spin chains*
Jaegon Um, Hyunggyu Park, and Haje Hinrichsen
J. Stat. Mech. P10026 (2012).
43. *Rectification of spatial disorder*
Jaegon Um, Hyunsuk Hong, Fabio Marchesoni, and Hyunggyu Park
Phys. Rev. Lett. **108**, 060601 (2012).
44. *Continuity of the explosive percolation transition*
Hyun Keun Lee, Beom Jun Kim, and Hyunggyu Park
Phys. Rev. E **84**, 020101(R) (2011).
45. *Scaling of cluster heterogeneity in percolation transitions*
Jae Dong Noh, Hyun Keun Lee, and Hyunggyu Park
Phys. Rev. E **84**, 010101(R) (2011).
46. *Non-equilibrium fluctuations for linear diffusion dynamics*
Chulan Kwon, Jae Dong Noh and Hyunggyu Park
Phys. Rev. E **83**, 061145 (2011).
47. *Collective helping and bystander effects in coevolving helping networks*
Hang-Hyun Jo, Hyun Keun Lee, and Hyunggyu Park
Phys. Rev. E **81**, 066108 (2010).

48. *Critical behavior of the Ising model in annealed scale-free networks*
Sang Hoon Lee, Meesoon Ha, Hawoong Jeong, Jae Dong Noh, and Hyunggyu Park
Phys. Rev. E 80, 051127 (2009).
49. *Relaxation dynamics of an elastic string in random media*
Jae Dong Noh and Hyunggyu Park
Phys. Rev. E 80, 040102(R) (2009).
50. *Critical behavior of the contact process in annealed scale-free networks*
Jae Dong Noh and Hyunggyu Park
Phys. Rev. E 78, 041128 (2009).
51. *Crossover from the parity-conserving pair contact process with diffusion to other universality classes*
Su-Chan Park and Hyunggyu Park
Phys. Rev. E 79, 051130 (2009).
52. *Kinetics of a non-glauberian Ising model: global observables and exact results*
Sreedhar B. Dutta, Malte Henkel, and Hyunggyu Park
J. Stat. Mech. P03023 (2009).
53. *Three different routes from the directed Ising to the directed percolation class*
Su-Chan Park and Hyunggyu Park
Phys. Rev. E 78, 041128 (2008).
54. *Nonequilibrium phase transitions into absorbing states: Focused around the pair contact process with diffusion*
Su-Chan Park and Hyunggyu Park
Eur. Phys. J. B 64, 415 (2008).
55. *Boundary-induced abrupt transition in the symmetric exclusion process*
Apoorva Nagar, Meesoon Ha, and Hyunggyu Park
Phys. Rev. E 77, 061118 (2008).
56. *Finite-size scaling of synchronized oscillation on complex networks*
Hyunsuk Hong, Hyunggyu Park, and Lei-Han Tang
Phys. Rev. E 76, 066104 (2007).
57. *Nontrivial critical crossover between directed percolation models: Effect of infinitely many absorbing states*
Su-Chan Park and Hyunggyu Park
Phys. Rev. E 76, 051123 (2007).
58. *Entrainment transition in populations of random frequency oscillators*
Hyunsuk Hong, Hughes Chaté, Hyunggyu Park, and Lei-Han Tang
Phys. Rev. Lett. 99, 184101 (2007).
59. *Construction of equilibrium networks with an energy function*
Daun Jeong, M. Y. Choi, and Hyunggyu Park
J. Phys. A 40, 9723 (2007).

60. *Dynamic instability transitions in 1D driven diffusive flow with non-local hopping*
Meesoon Ha, Hyunggyu Park, and Marcel den Nijs
Phys. Rev. E 75, 061131 (2007).
61. *Finite-size scaling in complex networks*
Hyunsuk Hong, Meesoon Ha, and Hyunggyu Park
Phys. Rev. Lett. 98, 258701 (2007).
62. *Comment on “ Non-mean-field behavior of the contact process on scale-free networks”*
Meesoon Ha, H. Hong, and Hyunggyu Park
Phys. Rev. Lett. 98, 029801 (2007).
63. *Anomalous Binder cumulant and lack of self-averageness in systems with quenched disorder*
Hyunsuk Hong, Hyunggyu Park, and Lei-Han Tang
J. Korean Phys. Soc. 49, L1885 (2006).
64. *Equivalence of operator-splitting schemes for the integration of the Langevin equation*
H. K. Lee, C. Kwon, and Hyunggyu Park
J. Stat. Mech. P08021 (2006).
65. *Crossover from the pair contact proces with diffusion to directed percolation*
Su-Chan Park and Hyunggyu Park
Phys. Rev. E 73, 025105(R) (2006).
66. *Collective synchronization in spatially extended systems of coupled oscillators with random frequencies*
H. Hong, Hyunggyu Park, and M. Y. Choi
Phys. Rev. E 72, 036217 (2005).
67. *Generating function for particle-number probability distribution in directed percolation*
Lucian Anton, Hyunggyu Park, and Su-Chan Park
J. Phys. A 38, 8187 (2005).
68. *Asymmetrically coupled directed percolation systems*
Jae Dong Noh and Hyunggyu Park
Phys. Rev. Lett. 94, 145702 (2005).
69. *Slow relaxation in the Ising model on a small-world network with strong long-range interactions*
Daun Jeong, M. Y. Choi, and Hyunggyu Park
Phys. Rev. E 71, 036103 (2005).
70. *Driven pair contact process with diffusion*
Su-Chan Park and Hyunggyu Park
Phys. Rev. Lett. 94, 065701 (2005).
71. *Scale-free dynamics emerging from information transfer*
M. Y. Choi, Beom Jun Kim, B.-G. Yoon, and Hyunggyu Park
Europhys. Lett. 69, 503 (2005).

72. *Cluster mean field approximations with the coherent anomaly method analysis for the driven pair contact process with diffusion*
Su-Chan Park and Hyunggyu Park
Phys. Rev. E 71, 016137 (2005).
73. *Collective phase synchronization in locally-coupled limit-cycle oscillators*
H. Hong, Hyunggyu Park, and M. Y. Choi
Phys. Rev. E 70, 045204(R) (2004).
74. *Factors that predict better synchronizability on complex networks*
H. Hong, Beom Jun Kim, M. Y. Choi, and Hyunggyu Park
Phys. Rev. E 69, 067105 (2004).
75. *Stability of vacuum in coupled directed percolation processes*
Sungchul Kwon and Hyunggyu Park
Phys. Rev. E 69, 066125 (2004).
76. *Universality class of absorbing transitions with continuously varying exponents*
Jae Dong Noh and Hyunggyu Park
Phys. Rev. E 69, 016122 (2004).
77. *Comment on “Restricted curvature model with suppression of extremal height”*
Hyunggyu Park
Phys. Rev. E 68, 053601 (2003).
78. *Fluctuations of self-flattening surfaces*
Yup Kim, S. Y. Yoon, and Hyunggyu Park
Phys. Rev. E 66, 040602(R) (2002).
79. *Dynamic surface structures in multiparticle-correlated surface growths*
Yup Kim, T. S. Kim, and Hyunggyu Park
Phys. Rev. E 66, 046123 (2002).
80. *Anomalous roughness, localization, and globally constrained random walks*
Jae Dong Noh, Hyunggyu Park, Doochul Kim, and Marcel den Nijs
Phys. Rev. E 64, 046131 (2001).
81. *Two-species branching annihilating random walks with one offspring*
Sungchul Kwon and Hyunggyu Park
J. Korean Phys. Soc. 38, 490 (2001).
82. *Relaxation of non-order parameter field in directed Ising systems*
Heung Sik Park and Hyunggyu Park
J. Korean Phys. Soc. 38, 494 (2001).
83. *Does hard core interaction change absorbing-type critical phenomena?*
Sungchul Kwon, Jysoo Lee, and Hyunggyu Park
Phys. Rev. Lett. 85, 1682 (2000).

84. *Anomalous roughness for dimer type surface growth*
Jae Dong Noh, Hyunggyu Park, and Marcel den Nijs
Phys. Rev. Lett. 84, 3891 (2000).
85. *Absorbing-state critical phenomena in interacting surface reaction models*
Hyunggyu Park and Sungchul Kwon
Brazilian J. Phys. 30, 133 (2000).
86. *Particle dynamics in a mass-coalescence process*
Meesoon Ha, Hyunggyu Park, and Marcel den Nijs
J. Phys. A 32, L495 (1999).
87. *Active width at a slanted active boundary in directed percolation*
Chun-Chung Chen, Hyunggyu Park, and Marcel den Nijs
Phys. Rev. E 60, 2496 (1999).
88. *Dynamic behavior of driven interfaces in models with two absorbing states*
Sungchul Kwon, WonMuk Hwang, and Hyunggyu Park
Phys. Rev. E 59, 4949 (1999).
89. *Interacting monomer-dimer model with infinitely many absorbing states*
WonMuk Hwang and Hyunggyu Park
Phys. Rev. E 59, 4683 (1999).
90. *Directed Ising type dynamic preroughening transition in one dimensional interfaces*
Jae Dong Noh, Hyunggyu Park, and Marcel den Nijs
Phys. Rev. E 59, 194 (1999).
91. *Critical phenomena of nonequilibrium dynamical systems with two absorbing states*
WonMuk Hwang, Sungchul Kwon, Heungwon Park, and Hyunggyu Park
Phys. Rev. E 57, 6438 (1998).
92. *Reentrant phase diagram of branching annihilating random walks with one and two offspring*
Sungchul Kwon and Hyunggyu Park
Phys. Rev. E 52, 5955 (1995).
93. *Critical behavior of an absorbing phase transition in an interacting monomer-dimer model*
Hyunggyu Park and Heungwon Park
Physica A 221, 97 (1995).
94. *Dynamic scaling behavior of an interacting monomer-dimer model*
Heungwon Park, Mann Ho Kim, and Hyunggyu Park
Phys. Rev. E 52, 5664 (1995).
95. *Exact solutions of a restricted ballistic deposition model on a one-dimensional staircase*
Hyunggyu Park, Meesoon Ha, and In-mook Kim
Phys. Rev. E 51, 1047 (1995).

96. *Critical behavior of an interacting monomer-dimer model*
Mann Ho Kim and Hyunggyu Park
Phys. Rev. Lett. 73, 2579 (1994).
97. *Three-state Potts model on a triangular lattice*
Hyunggyu Park
Phys. Rev. B 49, 12881 (1994).
98. *Dynamic scaling theory of $A + B \rightarrow$ surface reaction*
In-mook Kim, Hyunjoo Kim, and Hyunggyu Park
J. Korean Phys. Soc. 26, S406 (1993).
99. *The antiferromagnetic three-state Potts model on a triangular lattice*
Hyunggyu Park and Tong Chull Chey
J. Korean Phys. Soc. 26, S399 (1993).
100. *Critical behavior of surface-reaction models*
Mann Ho Kim and Hyunggyu Park
J. Korean Phys. Soc. 26, S345 (1993).
101. *Critical behavior of an interacting surface reaction model*
Jun Zhuo, Sidney Redner, and Hyunggyu Park
J. Phys. A 26, 4197 (1993).
102. *Excluded volume effect in heterogeneous catalysis: reactions between 'dollars' and 'dimes'*
Hyunggyu Park, Joachim Koeler, In-mook Kim, Daniel ben-Avraham, and Sidney Redner
J. Phys. A 26, 2071 (1993).
103. *Triviality of the critical exponents of directed self-avoiding walks on Sierpinsky carpets*
Mann Ho Kim, Jysoo Lee, Hyunggyu Park, and In-mook Kim
J. Phys. A 25, L453 (1992).
104. *Phase diagram of a random tiling quasicrystal*
Weixiong Lee, Hyunggyu Park, Michael Widom
J. Stat. Phys. 66, 1 (1992).
105. *Interface growth with competing surface currents*
Hyunggyu Park, Astro Provata, and Sidney Redner
J. Phys. A 24, L1391 (1991).
106. *Logarithmic singularity in the surface free energy near commensurate-incommensurate transitions*
Weixiong Lee and Hyunggyu Park
J. Phys. A 24, 257 (1991).
107. *Conformal invariance in incommensurate phases*
Hyunggyu Park and Michael Widom
J. Stat. Phys. 61, 51 (1990).

108. *Finite-size-scaling amplitudes in a random tiling model*
Weixiong Lee, Hyunggyu Park, and Michael Widom
J. Phys. A 23, L573 (1990).
109. *Universal finite-size-scaling amplitudes on a torus for the triangular Ising lattice gas*
Hyunggyu Park
J. Phys. A 23, 1789 (1990).
110. *Finite-size-scaling amplitudes of the incommensurate phase*
Hyunggyu Park and Michael Widom
Phys. Rev. Lett. 64, 1076 (1990).
111. *Exact results on the antiferromagnetic three state Potts model*
Hyunggyu Park and Michael Widom
Phys. Rev. Lett. 63, 1193 (1989).
112. *Universal finite-size-scaling amplitudes of interfacial free energies in Monte Carlo simulations*
Hyunggyu Park and Marcel den Nijs
J. Phys. A 22, 3663 (1989).
113. *Universal finite-size-scaling amplitudes of the Potts model on a torus*
Hyunggyu Park and Marcel den Nijs
Phys. Rev. B 38, 565 (1988).
114. *Anisotropic honeycomb domain wall networks in uniaxial systems*
Hyunggyu Park, Eberhard K. Riedel, and Marcel den Nijs
Ann. Phys. 172, 419 (1986).
115. *Large q expansion of the Potts model susceptibility and magnetization in two and three dimensions*
Hyunggyu Park and Doochul Kim
J. Korean Phys. Soc. 15, 55 (1982).

Professional Activities

1. Recent Invited Lectures (international/selected)

- *Exactly solvable two-terminal heat engine with asymmetric Onsager coefficients: Origin of the power-efficiency bound*
ICTP-KIAS school on Statistical Physics for Life Sciences
KIAS, Seoul, Korea (2022/11/2) [school lecturer]
- *Classical speed limit and tight finite-time Landauer's bound*
Large Deviations, Extremes and Anomalous Transport in Non-equilibrium Systems
ESI, Vienna, Austria (2022/10/4)
- *Thermodynamics in the 21st century*
The 15th Asia Pacific Physics Conference (APPC15)
online, Seoul, Korea (2022/08/24) [plenary speaker]

- *Classical speed limit and tight finite-time Landauer's bound*
Coarse-grained description for non-equilibrium systems and transport phenomena
U. of Rome/CNR, Rome, Italy (2022/07/04)
- *Speed limit for a highly irreversible process and tight finite-time Landauer's bound*
Stochastic Thermodynamics: Recent Developments
online, ICTS, India (2022/06/14)
- *Brief sketch of stochastic thermodynamics, fluctuation theorems, and thermodynamic uncertainty relations*
The 8th Soft Matter Summer School, "Emergence of Life"
online, KIAS, Seoul, Korea (2021/07/20) [school lecturer]
- *Coherence effect in a multi-level quantum-dot heat engine*
Asia Pacific Physics Conference (APPC2019)
Kuching, Malaysia (2019/11/17-21)
- *Exactly solvable two-terminal heat engine with asymmetric Onsager coefficients: Origin of the power-efficiency bound*
East Asia Joint Seminar on Statistical Physics (EAJSSP2019)
ITP-CAS, Beijing, China (2019/10/22-25)
- *Coherence effect in a multi-level quantum-dot heat engine*
Frontiers of Quantum and Mesoscopic Thermodynamics (FQMT19)
Prague, Czech Republic (2019/7/14-20)
- *Exactly solvable two-terminal heat engine with asymmetric Onsager coefficients*
STATPHYS27
Buenos Aires, Argentina (2019/7/8-12) [contributed]
- *Efficiency, Reversibility, and Power of Heat Engines*
XXVI Sitges Conference on Statistical Mechanics: New Trends in Statistical Physics, 50 years of the Sitges Conference
Sitges, Spain (2019/5/27-31) [keynote speaker]
- *Information thermodynamics and fluctuation theorems*
ICTP Workshop on Cellular Dynamics and Microbiome Studies
HKBU, Hong Kong (2018/11/29-30)
- *Efficiency, reversibility, and power of heat engines*
The 4th Asia-Pacific Regional Workshop for Complex Non-Equilibrium Systems
Institute of Natural Sciences, Shanghai Jiao Tong University, Shanghai, China (2018/6/28-30)
- *Energetics and efficiency of an information engine*
ICTP Mini Symposium on Nonequilibrium Thermodynamics and Active Matter
ICTP, Hong Kong Baptist University, Hong Kong (2018/4/16)
- *Efficiency, reversibility, and power of heat engines*
SRitp workshop: Correlation, Fluctuations, and anomalous transport in systems far from equilibrium
Weizmann Institute of Science, Rehovot, Israel (2017/12/31-2018/1/12)
- *Nonequilibrium steady states in Langevin thermal systems*
4th East Asia Joint Seminars on Statistical Physics
National Sun-Yat-Sen University, Kaoshiung, Taiwan (2017/10/17-20)

- *Nonequilibrium steady states in Langevin thermal systems*
30th Marian Smoluchowski symposium on statistical physics: On the uniformity of laws of nature
Jagiellonian University, Krakow, Poland (2017/9/3-8) [keynote speaker]
- *Carnot efficiency in an irreversible process*
Large deviation theory in statistical physics: recent advances and future challenges
ICTS, Bangalore, India (2017/8/21-26)
- *Carnot efficiency in an irreversible process*
Frontiers of quantum and mesoscopic thermodynamics (FQMT17)
Prague, Czech (2017/7/10-15)
- *Carnot efficiency in an irreversible process*
Department colloquium
Dept. Phys., HKUST, Hong Kong (2017/6/7)
- *Carnot efficiency in an irreversible process*
ICTS workshop on nonequilibrium statmech and biophysics
HKBU, Hong Kong (2017/6/6)
- *Thermodynamics of Langevin systems with velocity-dependent forces*
9th Dynamics Days Asia Pacific (DDAP9)
HKBU, Hong Kong (2016/12/14-17) [plenary speaker]
- *Thermodynamics of Langevin systems with velocity-dependent forces*
Workshop on stochasticity and fluctuations in small systems
POSTECH, Pohang (2016/11/29-12/2)
- *Stochastic thermodynamics*
Nonequilibrium statistical physics and active matter systems
IOP-CAS, Beijing, China (2016/8/8-20) [school lecturer]
- *Fluctuations and entropy production in Langevin systems with velocity-dependent forces*
STATPHYS 26
Lyon, France (2016/7/18-22) [contributed]
- *Synchronization transitions on networks*
XXVII IUPAP conference on computational physics (CCP 2016)
Pretoria, South Africa (2016/7/10-14) [contributed]
- *Phase transitions on networks: synchronization as an example*
8th International conference on discrete models of complex systems (Summer Solstice 2016)
Universidade de Aveiro, Portugal (2016/6/20-22)
- *Energetics and efficiency of an information engine*
3rd Asia-Pacific regional workshop for complex nonequilibrium systems
UNIST, Ulsan, Korea (2016/5/19-21)
- *Entropy production and fluctuation theorems with odd-parity variables*
Department seminar
Chemistry Dept., CUNY, New York, USA (2016/3/11)
- *Dynamic transitions in nonequilibrium work fluctuations of linear diffusion systems*
NESP2015
ICTS, Bangalore, India (2015/10/26-11/20)

- *Energetics and efficiency of an information engine*
Frontiers of Quantum and Mesoscopic Thermodynamics
Pyramida Hotel, Prague, Czech Republic (2015/7/27-8/1)
- *Entropy production and fluctuation theorems with odd-parity variables*
27th Marian Smoluchowski Symposium on Statistical Physics: Fundamentals, soft matter, and biocomplexity
Zakopane, Poland (2014/9/22-26)
- *Introduction to fluctuation theorems*
2014 Summer school on active systems
GIST, Gwangju (2014/6/23-27) [tutorial lecturer]
- *Entropy production and fluctuation theorems with odd-parity variables*
Advances in nonequilibrium statistical mechanics: large deviations and long-range correlations, extreme statistics, anomalous transport and long-range interactions
GGI, Florence, Italy (2014/5/6-6/21)
- *Fluctuation theorems and entropy production in stochastic processes with odd-parity variables*
Workshop on Dynamics of Complex Systems 2014
U Brasilia, Brasilia, Brazil (2014/2/9-13) [plenary speaker]
- *Entropy production and fluctuation theorems*
IAS program on frontiers of soft matter physics
IAS, HKUST, Hong Kong, China (2014/1/6-10) [tutorial lecturer]
- *Entropy production and dynamic processes of small systems*
WFTCPC 2013
Cholburi, Thailand (2013/12/9-12)
- *Entropy production and heat in stochastic processes with odd-parity variables*
Workshop on Small systems far from equilibrium: Order, correlations, and fluctuations
MPI-KS, Dresden, Germany (2013/10/14-18)
- *Entropy production and fluctuation Theorems*
PTES 2013
Tongji U, Shanghai, China (2013/8/27-30) [school lecturer]
- *Introduction to fluctuation Theorems*
CCAST Summer School 2013
Academia Sinica, Beijing, China (2013/8/7-10) [school lecturer]
- *Entropy production and thermodynamic 2nd laws*
APPC12
Chiba, Japan (2013/7/15-17) [keynote speaker]
- *Phase transitions on networks: synchronization as an example*
NATO Advanced Research Workshop: New Challenges in Complex System Physics
Samarkand, Uzbekistan (2013/5/20-24) [keynote speaker]
- *Fluctuation theorems and entropy production in stochastic processes with odd-parity variables*
Annual Meeting of Taiwan Physical Society
National Donghwa U, Hualien, Taiwan (2013/1/29-30)

- *Phase transitions on networks: annealed versus quenched*
NCTS Workshop on the soft matter and complex systems
Hualien, Taiwan (2013/1/28)
- *Continuity of the explosive percolation transition*
Department Seminar
IOP of Academia Sinica, Taipei, Taiwan (2013/1/24)
- *Entropy production and fluctuation theorems in general stochastic processes with odd-parity variable*
Workshop on the Open Problems of the Glass Transitions and Related Topics
Kyushu U, Fukuoka, Japan (2012/12/17-20)
- *Phase transitions on networks: annealed versus quenched*
Workshop on the Open Problems of the Glass Transitions and Related Topics
Kyushu U, Fukuoka, Japan (2012/12/17-20)
- *Recent developments in the nonequilibrium statistical physics of small systems*
Workshop on Dynamics and Regulation of Biomolecular Networks
HKBU, Hong Kong, China (2012/12/10-14)
- *Entropy production and Fluctuation theorems in general stochastic processes with odd-parity variables*
Capri Fall Workshop on “Nonequilibrium processes and fluctuation-dissipation theorems” Capri, Italy (2012/9/9-15)
- *Nonequilibrium fluctuation theorems and thermodynamic 2nd laws*
CCAST Statphys Summer School ITP, Beijing, China (2012/8/3) [school lecturer]
- *Dynamic phase transitions in large work production of linear diffusion systems*
XXIII Sitges Conference on Statistical Mechanics 2012
Sitges, Spain (2012/6/4-8) [plenary speaker]
- *Nonequilibrium fluctuation theorems and thermodynamic 2nd laws: introductory review*
Department Colloquium
Physics Dept., Fudan Univ., Shanghai, China (2012/5/29)
- *Dynamic phase transitions in large work production of linear diffusion systems*
East Asia Joint Seminars on Statistical Physics 2012
Suzhou, China (2012/3/17-20)
- *Introductory review on fluctuation theorems: theoretical aspect*
Fluctuation Theorems and Interdisciplinary Applications
KITPC, Beijing, China (2011/12/3-4)
- *Synchronization and fluctuation in a large population of coupled random frequency oscillators*
Department Seminar
Physics Dept., Univ. Wuerzburg, Wuerzburg, Germany (2011/11/23).
- *Continuity of the explosive percolation transition*
International Seminars on Large Fluctuations of Nonequilibrium Systems
MPI, Dresden, Germany (July 2011)
- *Continuity of the explosive percolation transition*
Interdisciplinary Applications of Statistical Physics & Complex Networks
KITPC, Beijing, China (March 2011)

- *Phase transitions on networks: Annealed versus quenched*
Interdisciplinary Applications of Statistical Physics & Complex Networks
KITPC, Beijing, China (March 2011)
- *Spontaneous current and negative mobility in a system of random frequency oscillators*
NIMS Hot Topics Workshop on Applied dynamical systems
NIMS, Daejeon, Korea (December 2010)
- *Relaxation dynamics of an elastic string in random media*
CSRC Workshop on High Performance Computing
CSRC, Beijing, China (December 2010)
- *Relaxation dynamics of an elastic string in random media*
APCTP Workshop on Current Progress of Simulations in Complex Systems
APCTP, Pohang, Korea (November 2010)
- *Spontaneous current induced by symmetry breaking in a system of random frequency oscillators*
Workshop on Dynamics of Complex Systems 2010
Univ. of Brasilia, Brasilia, Brazil (September 2010)
- *Current issues in nonequilibrium processes*
US-Korea Conference on Science, Technology, and Entrepreneurship (UKC 2010)
Seattle, USA (August 2010)
- *Spontaneous current induced by symmetry breaking in a system of random frequency oscillators*
StatPhysHK: Complexity, Computation, and Information
HKBU, Hong Kong, China (July 2010)
- *Synchronization and entrainment in coupled random frequency oscillators*
Workshop on Consensus, Flocking, and Synchronization of Interacting Systems
SNU, Seoul, Korea (February 2010)
- *Collective synchronization in a large population of random frequency oscillators*
22nd Marian Smoluchowski Symposium on Statistical Physics
Zakopane, Poland (September 2009)
- *Collective synchronizations and fluctuations*
Department Colloquium
Bogazici Univ., Istanbul, Turkey (May 2009)
- *Collective ratchets: Spontaneous current induced by symmetry breaking*
Symposium “Physics beyond the Cutting Edge”
Sun Yat-sen Univ., Guangzhou, China (April 2009)
- *Synchronization and fluctuation in coupled random frequency oscillators*
International Workshop on Many-body systems far from equilibrium: Fluctuations, slow dynamics, and long-range interactions
MPI, Dresden, Germany (February 2009)
- *Finite size scaling in quenched and annealed scale-free networks*
International Conference on Complex Networks: Past 10 Years and Future
SNU, Seoul, Korea (December 2008)
- *Symmetry breaking, spontaneous current, and negative mobility in coupled random frequency oscillators*

- International Workshop on Noise in complex systems: From molecular dynamics to stochastic modeling
KAIST, Daejeon, Korea (October 2008)
- *Synchronization and fluctuation in populations of random frequency oscillators*
Dynamics Days Asia Pacific 5: The 5th International Conference on Nonlinear Science
Nara, Japan (September 2008)
 - *Collective synchronization in coupled random frequency oscillators*
KITPC Program: Collective dynamics in information systems
KITPC, Beijing, China (March 2008)
 - *Finite size scaling in complex networks: Ising, contact process, and synchronization*
cnet2007 Workshop on Complex Networks
Amares-Braga, Portugal (December 2007)
 - *Collective synchronization in coupled random frequency oscillators*
Department Colloquium
Univ. Henry Poincare, Nancy, France (October, 2007)
 - *Dynamic instability transitions in 1D driven diffusive flow with non-local hopping*
International Workshop on Fluctuation and Dissipation Phenomena in Driven Systems far from
Equilibrium: STATPHYS 23 satellite meeting
MPI, Dresden, Germany (July 2007) [contributed]
 - *Nonequilibrium phase transitions into absorbing states – focused around PCPD*
23rd IUPAP International Conference on Statistical Physics (STATPHYS 23)
Genova, Italy (July 2007)
 - *Synchronization transitions in populations of random frequency oscillators*
International Workshop on Physics of Fluctuations far from Equilibrium: STATPHYS 23 satel-
lite meeting
MPI, Dresden, Germany (July 2007)
 - *Finite size scaling in complex networks*
Condensed matter group seminar
CEA, Saclay, France (June 2007)
 - *Pair contact process with diffusion (PCPD) at present*
3rd China-Singapore Joint Symposium on Research Frontiers in Physics
Xiamen University, Xiamen, China (May 2007)
 - *Finite Size Scaling in Complex Networks*
International Conference on Recent Advances in the Interdisciplinary Applications of Statistical
Physics
ICTS, Beijing, China (September 2006)
 - *On absorbing phase transitions*
Asia/Pacific School on Statistical Physics and Interdisciplinary Applications
ICTS, Beijing, China (September 2006) [school lecturer]
 - *Asymmetrically Coupled Directed Percolation Systems*
International Conference on the Frontiers of Nonlinear and Complex Systems
HKBU, Hong Kong, China (May 2006)

- *Finite Size Scaling in Complex Networks*
China-Singapore Joint Symposium on Research Frontiers in Physics
Zhejiang U, Hangzhou, China (May 2006)
- *Overview of Absorbing Phase Transitions*
Department Colloquium
HKBU, Hong Kong, China (December 2005)
- *Asymmetrically Coupled Directed Percolation Systems*
3rd NEXT $\Sigma\Phi$ International Conference - News, Expectations and Trends in Statistical Mechanics
OAC, Kolymbari, Greece (August 2005) [keynote speaker]
- *Overview of Absorbing Critical Phenomena*
Lorentz Center Workshop on Collective Aspects of Stochastic Nonequilibrium Phenomena at Surfaces and Interfaces
Lorentz Center, Leiden, Netherlands (June 2004)
- *Universality Classes of Absorbing Phase Transitions*
Department Seminar
U Manchester, Manchester, United Kingdom (October 2003)
- *Generalized Pair Contact Process with Diffusion*
International Seminar on Nonequilibrium Statistical Physics in Low Dimensions and Reaction Diffusion Systems
MPI, Dresden, Germany (September 2003)

2. Recent Organization of Conferences and Workshops (international/selected)

- *HK satellite meeting of STATPHYS28*
Tokyo, Japan (2023/8/7-11) [international advisory committee member]
- *IUPAP International Conference on Statistical Physics (STATPHYS28)*
Hong Kong, China (2023/8/2-5) [international advisory committee member]
- *Dynamics Days Asia-Pacific 12 (DDAP12)*
Daejeon, Korea (2022/11/7-11) [organizing vice-chair]
- *9th KIAS conference on statistical physics*
KIAS, Seoul (2022/7/25-28) [organizing chair]
- *5th KIAS Workshop on Quantum Information and Thermodynamics*
APCTP, POSTECH, Pohang (2019/11/10-13) [organizing chair]
- *International Workshop on Quantum Thermodynamics*
Shilla Stay, Jeju (2019/7/23-26) [organizer]
- *The 4th KIAS Workshop on Quantum Information and Thermodynamics*
Bloomvista, Yangpyeong (2018/12/20-22) [organizing chair]
- *IUPAP International Conference on Statistical Physics (STATPHYS27)*
Buenos Aires, Argentina (2019/7/8-12) [international advisory committee member]
- *The 10th Dynamics Days Asia Pacific (DDAP10)*
Huaqiao Univ., Xiamen, China (2018/11/1-5) [international advisory committee member]

- *8th KIAS conference on statistical physics*
KIAS, Seoul (2018/7/9-12) [organizing chair]
- *APCTP-KIAS Workshop on Motors and Engines*
KIAS, Seoul (2018/6/25-27) [organizer]
- *4th East Asia Joint Seminars on Statistical Physics*
National Sun-Yat-Sen University, Kaoshiung, Taiwan (2017/10/17-20) [organizer]
- *3rd KIAS workshop on quantum information and thermodynamics*
KIAS, Seoul (2017/9/18-20) [organizing chair]
- *Workshop on stochasticity and fluctuations in small systems*
Postech, Pohang (2016/11/30-12/2) [organizer]
- *2nd KIAS workshop on quantum information and thermodynamics*
Pheonix Island, Jeju (2016/11/14-18) [organizing chair]
- *IUPAP International Conference on Statistical Physics (STATPHYS26)*
Lyon, France (2016/7/18-22) [international advisory committee member and topic 2 committee chair]
- *7th KIAS Conference on Statistical Physics: Nonequilibrium Statistical Physics of Complex Systems*
KIAS, Seoul (2016/7/4-7) [organizing chair]
- *KIAS workshop on quantum information and thermodynamics*
KIAS, Seoul (2015/11/25-28) [organizing chair]
- *3rd East Asia joint seminar on statistical physics*
KIAS, Seoul (2015/10/14-17) [organizing chair]
- *KIAS workshop on anomalous dynamics in biological systems*
KIAS, Seoul (2015/9/3-5) [organizing co-chair]
- *6th KIAS Conference on Statistical Physics: Nonequilibrium Statistical Physics of Complex Systems*
KIAS, Seoul (2014/7/8-11) [organizing chair]
- *XXV IUPAP International Conference on Statistical Physics (STATPHYS25)*
Seoul National U, Seoul (2013/7/22-26) [organizing vice chair]
- *5th KIAS Conference on Statistical Physics: Nonequilibrium Statistical Physics of Complex Systems*
KIAS, Seoul (2012/7/3-6) [organizing chair]
- *East Asia Joint Seminars on Statistical Physics 2012*
Suzhou, China (2012/3/17-20) [organizing co-chair]
- *4th KIAS Conference on Statistical Physics: Nonequilibrium Statistical Physics of Complex Systems (STATPHYS24 satellite meeting)*
KIAS, Korea (July 2010) [organizing chair]
- *24th IUPAP International Conference on Statistical Physics (STATPHYS24)*
Cairns, Australia (July 2010) [international advisory committee member and topic committee member]

- *StatphysHK: Complexity, Computation, and Information (STATPHYS24 satellite meeting)*
Hong Kong, China (July 2010) [coorganizer]
- *3rd KIAS Conference on Statistical Physics: Nonequilibrium Statistical Physics of Complex Systems*
KIAS, Korea (July 2008) [organizing chair]
- *Asia-Pacific Physics Conference 10*
Gyeongju, Korea (August 2007) [coorganizer/program committee member]
- *23rd IUPAP International Conference on Statistical Physics (STATPHYS23)*
Genova, Italy (July 2007) [international advisory committee member]
- *2006 Dynamics Days Asia-Pacific 4: The 4th International Conference on Nonlinear Science*
Pohang, Korea (July 2006) [coorganizer]
- *2nd KIAS Conference on Statistical Physics: Nonequilibrium Statistical Physics of Complex Systems*
KIAS, Korea (July 2006) [organizing chair]
- *Satellite Meeting of STATPHYS22 in Seoul: Nonequilibrium Statistical Physics of Complex Systems*
KIAS, Korea (June-July 2004) [organizing chair]
- *7th APCTP Winter School on Granular Material and Complex Systems*
Pyungchang, Korea (February 2003) [coorganizer]
- *6th APCTP Winter school on Scaling and Phase Transitions in Complex Systems*
Pohang, Korea (February 2002) [coorganizer]

3. PhD Students and Postdoctoral fellows/research professors supervised

- *Current Members*
- *Past Members*
 - (a) Dr. Hor Dashti-Naserabadi (Jan. 2018-Jan. 2022) [from U of Tehran, Iran], now researcher at KENTECH, Korea.
 - (b) Dr. Jong-Min Park (Mar. 2019-Dec. 2022) [from U of Seoul, Korea], now JRG leader at APCTP, Korea.
 - (c) Dr. Jae Sung Lee (Sep. 2011-Jan. 2021) [from SNU, Korea], now professor at KIAS, Korea.
 - (d) Dr. S. Habib Ebrahimpnazhad Rahbari (Aug. 2015-Aug. 2020) [from Shahid Madani U of Azarbaijan, Iran], now research professor at SNU, Korea.
 - (e) Dr. Sang Hoon Lee (Aug. 2015-Aug. 2018) [from SKK U., Korea], now professor at Gyeongsang National U, Jinju, Korea.
 - (f) Dr. Xavier Durang (Nov. 2011-Oct. 2015) [from U. Nancy, France], now research professor at Postech, Pohang, Korea.
 - (g) Dr. Jae-Hyung Jeon (Sep. 2014-Aug. 2017) [from Tampere U. of Tech., Finland], now professor at POSTECH, Pohang, Korea.
 - (h) Dr. Jaegon Um (Sep. 2014-Aug. 2016, Sep. 2009-Aug. 2013) [from U. Würzburg, Germany & Postech, Korea], now research professor at POSTECH, Pohang, Korea.
 - (i) Dr. Wanming Qi (Sep. 2014-Aug. 2015) [from Brown U., USA], now professor at CUMT, Xuzhou, China.

- (j) Dr. Sourahb Lahiri (Jun. 2013-Mar. 2015) [from IOP, Bhubaneswar, India], now professor at BIT Mesra, India.
- (k) Dr. Hyun Keun Lee (May 2013-Dec. 2013, May 2005-June 2008) [from UoS & SNU, Korea], now research professor at SKKU, Korea.
- (l) Dr. Seung Ki Baek (Jan. 2012-Aug. 2013) [from Umea U., Sweden], now professor at Pukyong National University, Busan, Korea.
- (m) Dr. Kwangmoo Kim (Sep. 2011-Aug. 2013) [from U. Maryland, USA], now research fellow at Seoul National University, Seoul, Korea.
- (n) Dr. Myoung Won Cho (Sep. 2008-Feb. 2012) [from SNU, Korea], now professor at Sungshin Woman's Univ., Seoul, Korea.
- (o) Dr. Hang-Hyun Jo (Sep. 2006-Aug. 2010) [from KAIST, Korea], now professor at Catholic University, Bucheon, Korea.
- (p) Dr. Hyuk Kang (Mar. 2008-Feb. 2010) [from SNU, Korea], now researcher at NIMS, Daejeon, Korea.
- (q) Dr. Sreedhar B. Dutta (Mar. 2005-Mar. 2009) [from TIFR, India], now professor at IISER, Trivandrum, India.
- (r) Dr. Apoorva Nagar (Jan. 2007-May 2008) [from TIFR, India], now professor at IIST, Trivandrum, India.
- (s) Dr. Meesoon Ha (Aug. 2003-Aug. 2006) [from U Washington, Seattle], now professor at Chosun University, Gwangju, Korea.
- (t) Dr. Su-Chan Park (Mar. 2003-Apr. 2006) [from SNU, Korea], now professor at Catholic University, Bucheon, Korea.
- (u) Dr. Heung Sik Park (PhD in Aug. 2005) [at Inha U, Korea], now technical staff at Hynix semiconductor research laboratory, Korea.
- (v) Dr. Hyunsuk Hong (Sep. 2002-Aug. 2004) [from SNU, Korea], now professor at Chonbuk National University, Jeonju, Korea.
- (w) Dr. Sungchul Kwon (PhD in Aug. 2002) [at Inha U, Korea], now research professor at Catholic University, Korea.
- (x) Dr. Lucian Anton (Sep. 2001-Aug. 2002) [from IAP, Romania], now a research fellow at University of Manchester.
- (y) Dr. Jae Dong Noh (Mar. 2000-Aug. 2000) [from SNU, Korea], now professor at University of Seoul.