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### EDUCATIONAL BACKGROUND

- 1993 PhD in Mechanical Engineering, University of California at Berkeley *Advisor: Prof. Philip S. Marcus*
- 1987 MS in Mechanical Engineering, Seoul National University
- 1985 BS in Mechanical Engineering, Seoul National University

## PROFESSIONAL EXPERIENCES

- 2000 – Pres. Associate Professor & Professor, Department of Mechanical Engineering, Yonsei University
- 2009 – Pres. Professor, Department of Computational Science & Engineering, Yonsei University
- 2017–2019 Head, Department of Computational Science & Engineering, Yonsei University
- 2011–2015 Head, Department of Computational Science & Engineering, Yonsei University
- 1997 – 2000 Assistant Professor, Department of Mechanical Engineering, The University of Seoul
- 1994 – 1997 Postdoctoral Researcher, Department of Mechanical and Aerospace Engineering, UCLA
- 1993 – 1994 Postdoctoral Researcher, Department of Mechanical Engineering, University of California at Berkeley

## AWARDS & HONORS

- 2025 Outstanding Lecturer Award, Yonsei University
- 2024 Outstanding Lecturer Award, Yonsei University
- 2023 KSME Academic Award, The Korean Society of Mechanical Engineers
- 2023 KSME Fluid Engineering Academic Award, The Korean Society of Mechanical Engineers
- 2020 Faculty Award of Outstanding Achievement (Research), Yonsei University
- 2019 Faculty Award of Outstanding Achievement (Research), Yonsei University
- 2018 Faculty Award of Best Educator, Yonsei University
- 2016 NCFE Academic Award, National Congress on Fluids Engineering
- 2015 Faculty Award of Outstanding Achievement (Education), Yonsei University
- 2014 Award of Outstanding Contribution, The Korean Society of Mechanical Engineers
- 2013 Faculty Award of Outstanding Achievement (Education), Yonsei University
- 2008 Outstanding Lecturer Award, Yonsei University
- 2007 Namheon Academic Award, The Korean Society of Mechanical Engineers
- 2005 Best Scientific Paper Award, The Korean Federation of Science and Technology Societies
- 1988 National Fellowship for Study Abroad, Ministry of Education, Korea
- 1985 Graduated with *Magna cum Laude*, Seoul National University

## PROFESSIONAL MEMBERSHIP

- 1991 – Pres. Member, The American Physical Society
- 1997 – Pres. Member, The Korean Society of Mechanical Engineers
- 2003 – Pres. Member, The Korean Society of Engineering Education

## PROFESSIONAL ACTIVITIES

1. Editor, *Journal of Computational Science*, 2014 – present
2. Associate Editor, *Scientific Reports*, 2022 – present
3. Editorial Board Member, *Physical Review Fluids*, 2016 – 2022
4. Associate Editor, *Journal of Computational Fluids Engineering*, 2011 – present
5. Chair, The Korean Society for Computational Sciences and Engineering, 2022 – 2024
6. Vice-Chair, The Korean Society for Computational Sciences and Engineering, 2010 – 2022
7. Advisory Board Member, The Symposium on Turbulence and Shear Flow Phenomena, 2011 – present

8. Chair, Division of Fluids Engineering, The Korean Society of Mechanical Engineers, 2017
9. Track Organizer, ASME-JSME-KSME Joint Fluids Engineering Conference 2019, 2019
10. International Advisory Committee member, The 9th Korea-Japan Thermal and Fluids Engineering Conference, 2016 – 2017
11. Organizing Committee Member, International Symposium on Fluid Machinery and Fluid Engineering, 2016
12. Editor-in-Chief, *Journal of the KSME*, 2011 – 2014
13. Associate Editor, *Transaction of the Korean Society of Mechanical Engineers*, 2009 – 2012
14. Fellow, The Korean Society of Mechanical Engineers, 2010 – 2014
15. Director of Academic Research, The Korean Society of Mechanical Engineers, 2010 – 2011
16. Organizing Committee Member, International Conference on Multiphase Flow, 2011 – 2013
17. Organizing Committee Member, ASME-JSME-KSME Joint Fluids Engineering Conference 2011, July, 2011
18. Organizing Committee Member, The 8th Korea-Japan Thermal and Fluids Engineering Conference, March, 2012
19. Organizing Committee Member, The 6th National Congress on Fluids Engineering, Busan, Aug., 2010
20. Advisory Board Member/Local Executive Committee Member, The 6th Symposium on Turbulence and Shear Flow Phenomena, Seoul, June, 2009
21. Organizing Committee Member, The 7th Korea-Japan Thermal and Fluids Engineering Conference, Sapporo, Oct., 2008
22. Organizing Committee Member, The 5th International Conference on Computational Fluid Dynamics, Seoul, July, 2008
23. Program Manager of Undergraduate Program, School of Mechanical Engineering, Yonsei University, 2007 – 2009
24. Organizing Committee Member, International Conference on Parallel Computational Fluid Dynamics 2006, Busan, 2006

## **RESEARCH INTERESTS**

Turbulence: Fundamentals of turbulence, Lagrangian turbulence, Particle-laden turbulence, Bubble-laden turbulence, Turbulent convection, Polymer-laden turbulence, Machine learning of turbulence

Computational Fluid Dynamics: Numerical algorithm, Schemes, Immersed boundary method, GPU parallelization

Environmental Applications: Air pollution modeling, Stochastic process, Large eddy simulation of atmospheric flows

## JOURNAL PUBLICATIONS (International, SCI)

1. Jun Park & Changhoon Lee, "TPTNet: A data-driven temperature prediction model based on turbulent potential temperature," *Earth and Space Science*, Vol. 11, e2024EA003523, 2024
2. Nojun Kwak, Hyunwoo Nam & Changhoon Lee, "Computational fluid dynamics-enhanced prediction of flow rates in a multizone indoor environment," *Journal of Mechanical Science and Technology*, Vol. 38(12), 6635, 2024
3. Moojae Kim, Sangjo Kim, Dongwha Kim & Changhoon Lee, "Optimization of a nozzle vane of gas turbine pre-swirl system," *Journal of Mechanical Science and Technology*, Vol. 38(6), 2997, 2024
4. Jaewook Nam, Hyunwoo Nam & Changhoon Lee, "Large-eddy simulation for indoor flow in a multizone environment," *Journal of Mechanical Science and Technology*, Vol. 38(5), 2485, 2024
5. Jiyeon Kim, Junhyuk Kim & Changhoon Lee, "Prediction and control of two-dimensional decaying turbulence using generative adversarial networks," *Journal of Fluid Mechanics*, Vol. 981, A19, 2024
6. Taehyuk Lee, Junhyuk Kim & Changhoon Lee, "Turbulence control for drag reduction through deep reinforcement learning," *Physical Review Fluids*, Vol. 8, 024604, 2023
7. Hyojin Kim, Junhyuk Kim & Changhoon Lee, "Interpretable deep learning for prediction of Prandtl number effect in turbulent heat transfer," *Journal of Fluid Mechanics*, Vol. 955, A14, 2023
8. Seulgi Lee & Changhoon Lee, "Identification of a particle collision as a finite-time blowup in turbulence," *Scientific Reports*, Vol. 13, 181, 2023
9. Itzhak Fouxon, Seulgi Lee & Changhoon Lee, "Intermittency and collisions of fast sedimenting droplets in turbulence," *Physical Review Fluids*, Vol. 7, 124304, 2022
10. Seunghwan Kim, Junghoon Lee, Donghwa Kim & Changhoon Lee, "Effect of fillet radius of receiver hole on the performance of gas turbine pre-swirl system," *Journal of Mechanical Science and Technology*, Vol. 36(12), 6073, 2022
11. Junhyuk Kim, Hyojin Kim, Jiyeon Kim & Changhoon Lee, "Deep reinforcement learning for large-eddy simulation modeling in wall-bounded turbulence," *Physics of Fluids*, Vol. 34, 105132, 2022
12. Hyeon Shim & Changhoon Lee, "Effect of gravity-induced fluid inertia on the accumulation and dispersion of motile plankton settling weakly in turbulence," *Physics of Fluids*, Vol. 34, 085107, 2022
13. Sajjad ur Rehman & Changhoon Lee, "Effect of Weissenberg number on polymer-laden turbulence," *Physical Review Fluids*, Vol. 7, 064303, 2022
14. Woongki Kang & Changhoon Lee, "Symmetry-breaking natural convection of water in an infinite vertical channel maintained at different temperatures," *International Communications in Heat and Mass Transfer*, Vol. 135, 106100, 2022
15. Jaewook Nam & Changhoon Lee, "An immersed boundary method for complex terrain flow analysis," *Journal of Mechanical Science and Technology*, Vol. 36, pp. 1817-1824, 2022
16. Jin-Tae Kim, Yongsang Kim, Soohyeon Kang, Jaewook Nam, Changhoon Lee & Leonardo P. Chamorro, "Effect of the aspect ratio on the dynamics of air bubbles within Rayleigh-Bénard convection," *Physics of Fluids*, Vol. 33, 095104, 2021

17. Jaewook Nam & Changhoon Lee, "Real-time prediction of urban flow and dispersion," *Journal of Mechanical Science and Technology*, Vol. 35, pp. 4555-4574, 2021
18. Jongsu Kim & Changhoon Lee, "Deep particulate matter forecasting model using correntropy-induced loss," *Journal of Mechanical Science and Technology*, Vol. 35, pp. 4045-4063, 2021
19. Gihun Shim, Jongsu Kim & Changhoon Lee, "Path instability of a no-slip spheroidal bubble in isotropic turbulence," *Physical Review Fluids*, Vol. 6, 073603, 2021
20. Hyoeun Shim & Changhoon Lee, "Two-way interaction between isotropic turbulence and dispersed bubbles," *Journal of Mechanical Science and Technology*, Vol. 35, pp. 1527-1537, 2021
21. Hyojin Kim, Junhyuk Kim, Sungjin Won & Changhoon Lee, "Unsupervised deep learning for super-resolution reconstruction of turbulence," *Journal of Fluid Mechanics*, Vol. 910, A29, 2021
22. Seulgi Lee & Changhoon Lee, "Behavior of settling particles in homogeneous shear turbulence," *Physical Review Fluids*, Vol. 5, 104306, 2020
23. Gihun Shim, Hyeongjun Park, Seulgi Lee & Changhoon Lee, "Behavior of microbubbles in homogeneous stratified turbulence," *Physical Review Fluids*, Vol. 5, 074302, 2020
24. Itzhak Fouxon & Changhoon Lee, "Large deviations, singularity, and lognormality of energy dissipation in turbulence," *Physical Review E (Rapid Communications)*, Vol. 101, 061101(R), 2020
25. Sungjin Won & Changhoon Lee, "Simulation of the mushroom cloud generated from a high-energy explosion using large-eddy simulation," *Journal of Mechanical Science and Technology*, Vol. 34(6), pp. 2443-2453, 2020
26. Hyunwook Park, Geunwoo Oh, Tae Seon Park, Changhoon Lee & Jung-II Choi, "An immersed boundary formulation incorporating a two-layer wall model approach for RANS simulations with complex geometry," *Computers and Fluids*, Vol. 205, 104551, 2020
27. Jin-Tae Kim, Jaewook Nam, Shikun Shen, Changhoon Lee & Leonardo P. Chamorro, "On the dynamics of air bubbles in Rayleigh-Bénard convection," *Journal of Fluid Mechanics*, Vol. 891, A7, 2020
28. Junhyuk Kim & Changhoon Lee, "Deep unsupervised learning of turbulence for inflow generation at various Reynolds numbers," *Journal of Computational Physics*, Vol. 406, 109216, 2020.
29. Junhyuk Kim & Changhoon Lee, "Prediction of turbulent heat transfer using convolutional neural networks," *Journal of Fluid Mechanics*, Vol. 882, A18, 2020
30. Hojun Lee, Itzhak Fouxon & Changhoon Lee, "Sedimentation of a small sphere in stratified fluid," *Physical Review Fluids*, Vol. 4, 104101, 2019
31. Junghoon Lee & Changhoon Lee, "The effect of wall-normal gravity on particle-laden near-wall turbulence," *Journal of Fluid Mechanics*, Vol. 873, pp. 475-507, 2019
32. Battsetseg Gereltbyamba & Changhoon Lee, "Flow modification by inertial particles in a differentially heated cubic cavity," *International Journal of Heat and Fluid Flow*, Vol. 79, 108445, 2019
33. Itzhak Fouxon, Gihun Shim, Seulgi Lee & Changhoon Lee, "Multifractality of fine bubbles in turbulence due to lift," *Physical Review Fluids*, Vol. 3, 124305, 2018

34. Juwon Jang & Changhoon Lee, "Modification of turbulence and stratification of stably stratified turbulent channel flows by finite-size particles," *Physical Review Fluids*, Vol. 3, 124309, 2018
35. Xiaomin Pan, Changhoon Lee & Jung-II Choi, "Efficient monolithic projection method for time-dependent conjugate heat transfer problems," *Journal of Computational Physics*, Vol. 369, pp. 191-208, 2018
36. Battsetseg Gereltbyamba & Changhoon Lee, "Behavior of settling inertial particles in a differentially heated cubic cavity at moderate Rayleigh number," *Journal of Mechanical Science and Technology*, Vol. 32, pp. 3169-3182, 2018
37. Juwon Jang & Changhoon Lee, "An immersed boundary method for nonuniform grids," *Journal of Computational Physics*, Vol. 341, pp. 1-12, 2017
38. Hojun Lee & Changhoon Lee, "Drag and torque acting on a sphere rotating in the streamwise direction for the Reynolds number range of  $0.02 < Re < 200$ ," *Journal of Mechanical Science and Technology*, Vol. 31, pp. 5285-5289, 2017
39. Xiaomin Pan, Kyoungyoun Kim, Changhoon Lee & Jung-II Choi, "Fully decoupled monolithic projection method for natural convection problems," *Journal of Computational Physics*, Vol. 334, pp. 582-606, 2017
40. Sajjad-ur-Rehman, Rizwan-ul-Haq & Changhoon Lee, "Numerical study of non-Newtonian fluid flow over an exponentially stretching surface: an optimal HAM validation," *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, Vol. 39, pp. 1589-1596, 2017
41. Seungho Song, Yibao Li, Changhoon Lee & Jung-II Choi, "Effect of surface conditions on blast wave propagation," *Journal of Mechanical Science and Technology*, Vol. 30, pp. 3907-3915, 2016
42. Hyunwook Park, Xiaomin Pan, Changhoon Lee & Jung-II Choi, "A pre-conditioned implicit direct forcing based immersed boundary method for incompressible viscous flows," *Journal of Computational Physics*, Vol. 314, pp. 774-799, 2016
43. Xiaomin Pan, Kyoungyoun Kim, Changhoon Lee & Jung-II Choi, "A decoupled monolithic projection method for natural convection problems," *Journal of Computational Physics*, Vol. 314, pp. 160-166, 2016
44. Xiaomin Pan, Kyoungyoun Kim, Changhoon Lee & Jung-II Choi, "Analysis of velocity-components decouple projection method for the incompressible Navier-Stokes equation," *Computers and Mathematics with Applications*, Vol. 71, pp. 1722-1743, 2016
45. Rizwan Ul Haq, Sajjad ur-Rehman & Changhoon Lee, "Entropy generation analysis of non-Newtonian nanofluid with zero normal flux of nanoparticles at the stretching surface," *Journal of the Taiwan Institute of Chemical Engineers*, Vol. 63, pp. 226-235, 2016
46. Jung-II Choi, Yongnam Park, Ohjoon Kwon & Changhoon Lee, "Interparticle collision mechanism in turbulence," *Physical Review E*, Vol. 93, 013112, 2016
47. Sajjad ur-Rehman, Sohail Nadeem & Changhoon Lee, "Series solution of magnetohydrodynamic boundary layer flow over bidirectional exponentially stretching surfaces," *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, Vol. 38, pp. 443-453, 2016
48. Itzhak Fouxon, Yongnam Park, Roei Harduf & Changhoon Lee, "Inhomogeneous distribution of water droplets in cloud turbulence," *Physical Review E*, Vol. 92, 033001, 2015
49. Sangro Park & Changhoon Lee, "Analysis of coherent structures in Rayleigh-Bénard convection," *Journal of Turbulence*, Vol. 16, pp. 1162-1178, 2015

50. Sangro Park, Younghoon Jung & Changhoon Lee, "Numerical simulation of mixed convection in vertical concentric cylinders," *Journal of Mechanical Science and Technology*, Vol. 29, pp. 4745-4755, 2015
51. Sohail Nadeem, Rizwan UI Haq & Changhoon Lee, "MHD boundary layer flow over an unsteady shrinking sheet: analytical and numerical approach," *Journal of the Brazillian Society of Mechanical Sciences and Engineering*, Vol. 37, pp. 1339-1349, 2015
52. Junghoon Lee & Changhoon Lee, "Modification of particle-laden near-wall turbulence: Effect of Stokes number," *Physics of Fluids*, Vol. 27, 023303, 2015
53. Hea Eun Lee & Changhoon Lee, "Behavior of particles in turbulence over a wavy boundary," *International Journal of Multiphase Flow*, Vol. 67, pp. 118-131, 2014
54. Sohail Nadeem, M. A. Sadiq, Jung-il Choi & Changhoon Lee, "Exponentially stagnation point flow of non-Newtonian nanofluid over an exponentially stretching surface," *International Journal of Nonlinear Science and Numerical Simulation*, Vol. 15(3-4), pp. 171-180, 2014
55. Yongnam Park & Changhoon Lee, "Gravity-driven clustering of inertial particles in turbulence," *Physical Review E (Rapid Communication)*, Vol. 89, 061004(R), 2014
56. Kiyong Moon, Jeong-Min Hwang, Byung-Gu Kim, Changhoon Lee & Jung-il Choi, "Large-eddy simulation of turbulent flow and dispersion over a complex urban street canyon," *Environmental Fluid Mechanics*, Vol. 14, pp. 1381-1403, 2014
57. Sohail Nadeem, Rizwan UI Haq, Noreen Sher Akbar, Changhoon Lee & Zafat Hayat Khan, "Numerical study of boundary layer flow and heat transfer of Oldroyd-B nanofluid towards a stretching sheet," *PLOS ONE*, Vol. 8, e69811, 2013
58. Sohail Nadeem, Sadaf Ashiq, Noreen S. Akbar & Changhoon Lee, "Peristaltic flow of hyperbolic tangent fluid in a diverging tube with heat and mass transfer," *Journal of Energy Engineering*, Vol. 139, pp. 124-135, 2013
59. Noreen Sher Akbar, Sohail. Nadeem & Changhoon Lee, "Characteristics of Jeffrey fluid model for peristaltic flow of chyme in small intestine with magnetic field," *Results in Physics*, Vol. 3, pp. 152-160, 2013
60. Noreen Sher Akbar, Sohail. Nadeem, Changhoon Lee, Zafar Hayat Khan & Rizwan UI Haq, "Numerical study of Williamson nano fluid flow in an asymmetric channel," *Results in Physics*, Vol. 3, pp. 161-166, 2013
61. Youngho Suh & Changhoon Lee, "A numerical method for the calculation of drag and lift of a deformable droplet in shear flow," *Journal of Computational Physics*, Vol. 241, pp. 35-57, 2013
62. Abouelmagd H. Abdelsamie & Changhoon Lee, "Decaying versus stationary turbulence in particle-laden isotropic turbulence: Heavy particle statistics modifications," *Physics of Fluids*, Vol. 25, 033303, 2013
63. Noreen Sher Akbar, Sohail Nadeem & Changhoon Lee, "Biomechanical analysis of Eyring Prandtl fluid model for blood flow in stenosed arteries," *International Journal of Nonlinear Science and Numerical Simulation*, Vol. 14, pp. 345-353, 2013
64. Noreen Sher Akbar, Sohail Nadeem, Changhoon Lee & Zafar Hayat Khan, "Numerical simulation of nanoparticle fraction for the peristaltic flow of a six constant Jeffrey's fluid model," *Current Nanoscience*, Vol. 9, pp. 798-803, 2013
65. Sohail Nadeem, S. T. Hussain & Changhoon Lee, "Flow of a Williamson fluid over a stretching sheet," *Brazilian Journal of Chemical Engineering*, Vol. 30, pp. 619-625, 2013

66. Changhoon Lee, Yongnam Park & Jaedal Jung, "Source of acceleration intermittency in isotropic turbulence," *Journal of Mechanical Science and Technology*, Vol. 26, pp. 3843-3847, 2012
67. Sohail Nadeem, Ul Haq. Rizwan & Changhoon Lee, "MHD flow of a Casson fluid over an exponentially shrinking sheet," *Scientia Iranica*, Vol. 19(6), pp. 1550-1553, 2012
68. Sohail Nadeem, Abdul Rehman, Changhoon Lee & Jinho Lee, "Boundary layer flow of second grade fluid in a cylinder with heat transfer," *Mathematical Problems in Engineering*, Vol. 2012, 640289, 2012
69. Abouelmagd H. Abdelsamie & Changhoon Lee, "Decaying versus stationary turbulence in particle-laden isotropic turbulence: Turbulence modulation mechanism," *Physics of Fluids*, Vol. 24, 015106, 2012
70. Sohail Nadeem, Noreen Sher Akbar, M. Y. Malik & Changhoon Lee, "Peristaltic flow of a Jeffrey-six constant fluid in a uniform inclined tube," *International Journal for Numerical Methods in Fluids*, Vol. 69, pp. 1550-1565, 2012
71. Noreen Sher Akbar, Sohail Nadeem & Changhoon Lee, "Influence of heat transfer and chemical reaction on Williamson fluid model for blood flow through a tapered artery with a stenosis," *Asian Journal of Chemistry*, Vol. 24, pp. 2433-2441, 2012
72. K. Vajravelu, S. Sreenadh, K. Rajanikanth & Changhoon Lee, "Peristaltic transport of a Williamson fluid in asymmetric channels with permeable walls," *Nonlinear Analysis: Real World Applications*, Vol. 13, pp. 2804-2822, 2012
73. Sohail Nadeem & Changhoon Lee, "Boundary layer flow of nano fluid over an exponentially stretching surface," *Nanoscale Research Letters*, Vol. 7, p. 94, 2012
74. Sohail Nadeem, Abdul Rehman, K. Vajravelu, Jinho Lee & Changhoon Lee, "Axisymmetric Stagnation Flow of a Micropolar Nanofluid in a moving cylinder," *Mathematical Problems in Engineering*, Vol. 2012, 378259, 2012
75. Byung-Gu Kim, Changhoon Lee, Seokjun Joo, Ki-Cheol Ryu, Seogchel Kim, Donghyun You, & Woo-Sup Shim, "Estimation of roughness parameters within urban-like obstacle arrays," *Boundary-Layer Meteorology*, Vol. 139, pp. 457-485, 2011
76. Dong-Hyun Kim, Won-Eui Hong, Jae-Sang Ro, Seong Hyuk Lee, Changhoon Lee, & Seungho Park, "In-situ observation of phase transformation in amorphous silicon during Joule-heating induced crystallization process," *Thin Solid Films*, Vol. 519, pp. 5515-5522, 2011
77. K. Vajravelu, K.V. Prasad, Jinho Lee, Changhoon Lee, I. Pop, & Robert A. Van Gorder, "Convective heat transfer in the flow of viscous Ag-water and Cu-water nanofluids over a stretching surface," *International Journal of Thermal Sciences*, Vol. 50, pp. 843-851, 2011
78. Kyongmin Yeo, Byung-gu Kim & Changhoon Lee, "On the near-wall characteristics of acceleration in turbulence," *Journal of Fluid Mechanics*, Vol. 659, pp. 405-419, 2010
79. Yeontaek Choi, Yongnam Park & Changhoon Lee, "Helicity and geometric nature of particle trajectories in homogeneous isotropic turbulence," *International Journal of Heat and Fluid Flow*, Vol. 31, pp. 482-487, 2010
80. Byung-gu Kim, Jong Soo Kim & Changhoon Lee, "Lagrangian stochastic model for buoyant gas dispersion in a simple geometric chamber," *Journal of Loss Prevention in the Process Industries*, Vol. 22, pp. 995-1002, 2009

81. Yeontaek Choi, Byung-gu Kim & Changhoon Lee, "Alignment of velocity and vorticity and the intermittent distribution of helicity in isotropic turbulence," *Physical Review E*, Vol. 80, 017301, 2009
82. Kyongmin Yeo, Byung-gu Kim & Changhoon Lee, "Eulerian and Lagrangian statistics in stably stratified turbulent channel flows," *Journal of Turbulence*, Vol. 10, No. 17, pp. 1-26, 2009
83. Changhoon Lee, Taegee Min & John Kim, "Stability of a channel flow subject to wall blowing and suction in the form of a traveling wave," *Physics of Fluids*, Vol. 20, 1015313, 2008
84. Jaedal Jung, Kyongmin Yeo & Changhoon Lee, "Behavior of heavy particles in isotropic turbulence," *Physical Review E*, Vol. 77, 016307, 2008
85. Changhoon Lee, Byung-gu Kim & Seokryul Ko, "A new Lagrangian stochastic model for the gravity-slumping/spreading motion of a dense gas," *Atmospheric Environment*, Vol. 41, pp. 7874-7886, 2007
86. Sangbong Lee & Changhoon Lee, "Intermittency of acceleration in isotropic turbulence," *Physical Review E*, Vol. 71, 056310, 2005
87. Jung-Il Choi, Kyongmin Yeo & Changhoon Lee, "Lagrangian statistics in turbulent channel flow," *Physics of Fluids*, Vol. 16, pp. 779-793, 2004
88. Changhoon Lee, Kyongmin Yeo & Jung-il Choi, "Intermittent nature of acceleration in near-wall turbulence," *Physical Review Letters*, Vol. 92, art. no. 144502, 2004
89. Andrew M. Reynolds, Kyongmin Yeo & Changhoon Lee, "On the anisotropy of accelerations in turbulent flows," *Physical Review E*, Vol. 70, art. no. 017302, 2004
90. Changhoon Lee, "Stability characteristics of the virtual boundary method in three-dimensional applications," *Journal of Computational Physics*, Vol. 184, pp. 559-591, 2003
91. Changhoon Lee & Youngchwa Seo, "A New Compact Spectral Scheme for Turbulence Simulations," *Journal of Computational Physics*, Vol. 183, pp. 438-469, 2002
92. Changhoon Lee, & John Kim, "Control of viscous sublayer for drag reduction," *Physics of Fluids*, Vol. 14, No. 7, pp. 2523-2529, 2002
93. Changhoon Lee, "Large-eddy simulation of rough-wall turbulent boundary layers," *AIAA Journal*, Vol. 40, No 10, 2002
94. Changhoon Lee, Byung-gu Kim & Namhyun Kim, "A Lagrangian stochastic model for turbulent dispersion," *KSME International Journal*, Vol. 15, No. 12, pp. 1683-1690, 2001
95. Changhoon Lee, Namhyun Kim & John Kim, "Application of the Goore Scheme to turbulence control for drag reduction (I) - Improvement of the Goore Scheme," *KSME International Journal*, Vol. 15, No. 12, pp. 1572-1579, 2001
96. Changhoon Lee & John Kim, "Application of the Goore Scheme to turbulence control for drag reduction (II) - Application to turbulence control," *KSME International Journal*, Vol. 15, No. 12, pp. 1572-1579, 2001
97. Timothy W. Berger, John Kim, Changhoon Lee & Junwoo Lim, "Turbulent boundary layer control utilizing the Lorentz force," *Physics of Fluids*, Vol. 12, No. 3, pp. 631-649, 2000
98. Philip S. Marcus, T. Kundu & Changhoon Lee, "Vortex dynamics and zonal flows," *Physics of Plasmas*, Vol. 7, No. 5, pp. 1630-1640, 2000

99. Changhoon Lee, Byung-gu Kim & Namhyun Kim, "A simple Lagrangian pdf model for wall-bounded turbulent flows," *KSME International Journal*, Vol. 14, No. 8, pp. 900-911, 2000
100. Philip S. Marcus & Changhoon Lee, "A model for eastward and westward jets in laboratory experiments and planetary atmospheres," *Physics of Fluids*, Vol. 10, No. 6, pp. 1474-1489, 1998
101. Changhoon Lee, John Kim & Haecheon Choi, "Suboptimal control of turbulent channel flow for drag reduction," *Journal of Fluid Mechanics*, Vol. 358, pp. 245-258, 1998
102. Changhoon Lee, John Kim, David Babcock & Rodney Goodman, "Application of neural networks to turbulence control for drag reduction," *Physics of Fluids*, Vol. 9, No. 6, pp. 1740-1747, 1997
103. Philip S. Marcus & Changhoon Lee, "Jupiter's Great Red Spot and zonal winds as a self-consistent, one-layer, quasigeostrophic flow," *Chaos*, Vol. 4, pp. 269-286, 1994

## JOURNAL PUBLICATIONS (Domestic, in Korean)

1. Sihyun Park & Changhoon Lee, "Numerical investigation of flow entering the top of the wafer in single-wafer wet cleaner," *Journal of Computational Fluids Engineering*, Vol. 29, pp. 45-60, 2024
2. Donghwi Kim & Changhoon Lee, "Direct numerical simulation of two-way interaction between inertial particles and stratified turbulence," *Journal of Computational Fluids Engineering*, Vol. 25, pp. 1-12, 2020
3. Gihun Shim, Seulgi Lee & Changhoon Lee, "Behavior of microbubbles in isotropic turbulence," *Journal of Computational Fluids Engineering*, Vol. 21, pp. 46-53, 2016
4. Seungho Song, Changhoon Lee & Jung-II Choi, "Numerical simulation of initial fireball after nuclear explosion," *Journal of Computational Fluids Engineering*, Vol. 19, pp. 45-51, 2014
5. Hyunwook Park, Changhoon Lee & Jung-II Choi, "An immersed boundary method for low Reynolds number flows," *Journal of Computational Fluids Engineering*, Vol. 18, pp. 34-41, 2013
6. Yoonhong Min, Sungwon Kang, Namkeun Huh, Changhoon Lee & Jungtaek Park, "Performance assessment of the RANS turbulence models in prediction of aerodynamic noise," *Journal of Computational Fluids Engineering*, Vol. 17, pp. 81-86, 2012
7. Hyunwook Park, Changhoon Lee & Jung-II Choi, "Effect of wall proximity on drag and lift forces on a circular cylinder," *Journal of Computational Fluids Engineering*, Vol. 17, pp. 68-74, 2012
8. Yongnam Park & Changhoon Lee, "Modification of particle dispersion in isotropic turbulence by free rotation of particle," *Transactions B of KSME*, Vol. 34, pp. 665-670, 2010
9. Changhoon Lee, Jaedal Jung & Sunggi Cho, "Behavior of a heavy particle in the shear flow near a flat wall," *Transactions B of KSME*, Vol. 30, pp. 806-817, 2006
10. Changhoon Lee & Byunggu Kim, "Lagrangian dispersion model for dense gas in neutral atmospheric boundary layer," *Journal of the Korean Society for Atmospheric Environment*, Vol. 21, 2005
11. Byunggu Kim & Changhoon Lee, "Particle dispersion and effect of spin in the turbulent boundary layer flow," *Transactions B of KSME*, Vol. 28, pp. 89-98, 2004
12. Jung-II Choi, Kyongmin Yeo & Changhoon Lee, "Lagrangian investigation of turbulent channel flow (I) - An assessment of particle tracking algorithms," *Transactions B of KSME*, Vol. 27, pp. 859-866, 2003
13. Jung-II Choi, Kyongmin Yeo & Changhoon Lee, "Lagrangian investigation of turbulent channel flow (II) - Analysis of Lagrangian statistics," *Transactions B of KSME*, Vol. 27, pp. 867-876, 2003
14. Jaeho Choi & Changhoon Lee, "Numerical study of shear-enhanced turbulent dispersion," *Transactions B of KSME*, Vol. 25, pp. 944-951, 2001
15. Shin-Hyoung Kang, Ho-Sung Lee, Woo-Pyung Jeon & Changhoon Lee, "Viscous flows through screens normal to the uniform stream," *KSME Journal*, Vol. 3, pp. 146-152, 1989
16. Changhoon Lee & Shinhyung Kang, "Numerical calculation of flow and heat transfer in an axisymmetric reciprocating engine at its suction and compression stages," *Transactions of KSME*, Vol. 11, pp. 395-408, 1987

## APS DFD ANNUAL MEETING ABSTRACTS

1. Jiyeon Kim & Changhoon Lee, "Prediction of isotropic turbulence using conditional diffusion probabilistic models," *77th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2024
2. Jun Park & Changhoon Lee, "Enhanced Short-Term Precipitation Forecasting with Radar Data Using Swin Transformer Network," *77th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2024
3. Jiyeon Kim & Changhoon Lee, "Application of denoising diffusion probabilistic model to turbulence prediction," *76th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2023
4. Jun Park & Changhoon Lee, "Station-data-driven temperature forecasting in South Korea using neural networks," *76th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2023
5. Junhyuk Kim, Hyojin Kim, Jiyeon Kim & Changhoon Lee, "Deep reinforcement learning for large-eddy simulation subgrid-scale modeling in turbulent channel flow," *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2022
6. Hyojin Kim, Junhyuk Kim & Changhoon Lee, "Interpretable deep learning for turbulent heat transfer with Prandtl number effect," *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2022
7. Jiyeon Kim, Junhyuk Kim & Changhoon Lee, "Prediction and control of 2D decaying turbulence using generative adversarial networks," *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2022
8. Seulgi Lee & Changhoon Lee, "Numerical investigation of finite-time blowup related to particle collision," *75th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2022
9. Hyojin Kim, Junhyuk Kim, Sungjin Won & Changhoon Lee, "Super-resolution reconstruction of turbulence using unsupervised deep learning," *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2020
10. Junhyuk Kim, Hyojin Kim & Changhoon Lee, "Modeling wall-shear stress of turbulent flows through deep reinforcement learning," *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2020
11. Hojun Lee & Changhoon Lee, "Behavior of settling ellipsoidal microparticles in homogeneous isotropic turbulence," *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2020
12. Seulgi Lee & Changhoon Lee, "Numerical investigation of finite-time singularity in particle-laden turbulence," *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2020
13. Woongki Kang & Changhoon Lee, "Symmetry-breaking transition in natural convection flow between parallel vertical walls maintained at different temperature," *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2020
14. Gihun Shim & Changhoon Lee, "Path instability of a spheroidal bubble in weak turbulence," *73rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2020
15. Junghoon Lee & Changhoon Lee, "On the physical mechanism of the two-way interaction between polymers and near-wall turbulence," *72nd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2019

16. Junhyuk Kim & Changhoon Lee, "Turbulence inflow generation using generative adversarial network," *72nd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2019
17. Seulgi Lee & Changhoon Lee, "Behavior of heavy particles in shear turbulence under gravity," *71st Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2018
18. Juwon Jang & Changhoon Lee, "The interaction between the finite-size particles and stably stratified turbulent channel flow," *71st Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2018
19. Junhyuk Kim & Changhoon Lee, "Deep learning of turbulent heat transfer in channel flow," *71st Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2018
20. Junghoon Lee & Changhoon Lee, "Effect of gravitational settling of small heavy particles on two-way interactions in near-wall turbulence," *70th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2017
21. Hojun Lee & Changhoon Lee, "A numerical study of flow around a sedimenting particle in a linearly stratified fluid at small Reynolds numbers," *70th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2017
22. Junghoon Lee & Changhoon Lee, "Modification of particle-laden horizontal channel turbulence," *69th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2016
23. Changhoon Lee & Sangro Park, "Cell structures caused by settling particles in turbulent Rayleigh-Bénard convection," *69th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2016
24. Juwon Jang & Changhoon Lee, "An immersed boundary method for nonuniform Cartesian grids," *69th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2016
25. Junghoon Lee & Changhoon Lee, "Near-wall turbulence modification by small, heavy particles in a horizontal channel flow," *68th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2015
26. Sangro Park & Changhoon Lee, "Motions of particles falling under gravity in a weakly turbulent Rayleigh-Bénard convection," *68th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2015
27. Junghoon Lee & Changhoon Lee, "Lagrangian statistics of inertial particles in near-wall turbulence," *67th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2014
28. Sangro Park & Changhoon Lee, "Analysis of vortical structures in turbulent natural convection," *67th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2014
29. Yongnam Park & Changhoon Lee, "Effect of gravity on the finite-size particle within spectral resolution," *67th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2014
30. Junghoon Lee & Changhoon Lee, "Effects of small particles on coherent structures in particle-laden near-wall turbulence," *66th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2013
31. Hyunwook Park, Changhoon Lee & Jung-II Choi, "An implicit immersed boundary method for low Reynolds number incompressible flows," *66th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2013
32. Seungho Song, Jung-II Choi, Yibao Li & Changhoon Lee, "Numerical simulations of blast/shock wave propagations after nuclear explosion," *66th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2013

33. Yongnam Park & Changhoon Lee, "Segregation of heavy particles by gravitational force," *66th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2013
34. Hea Eun Lee & Changhoon Lee, "Behavior of particles in turbulence over a wavy wall," *65th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2012
35. Junghoon Lee & Changhoon Lee, "Four-way coupling simulation of particle-laden turbulent channel flow," *65th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2012
36. Hyunwook Park, Kiyoung Moon, Randall McDermott, Ezgi Oztekin, Changhoon Lee & Jung-II Choi, "Near-wall modeling for large eddy simulation of convective heat transfer in turbulent boundary layers," *65th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2012
37. Sangro Park & Changhoon Lee, "A new explicit projection method for incompressible flows," *65th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2012
38. Yongnam Park & Changhoon Lee, "Effect of gravity on the preferential concentration of heavy particles," *65th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2012
39. Sangro Park & Changhoon Lee, "A new fully explicit algorithm for incompressible flows," *64th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2011
40. Junghoon Lee & Changhoon Lee, "Acceleration modification of near-wall turbulence by heavy particles," *64th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2011
41. Yongnam Park & Changhoon Lee, "Effect of gravity on the dispersion of heavy particles," *64th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2011
42. Abouelmagd Abdelsamie & Changhoon Lee, "Physical perspectives on the investigation of two-way interaction in particle-laden isotropic turbulence," *64th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2011
43. Youngho Suh & Changhoon Lee, "A new method for calculation of acting forces on a deformable droplet in shear flow," *64th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2011
44. Jungmin Hwang, Byunggu Kim & Changhoon Lee, "Large-eddy simulation of turbulent flows in an urban street canyon," *63rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2010
45. Junghoon Lee & Changhoon Lee, "Behavior of heavy particles in turbulent channel flow," *63rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2010
46. Yongnam Park, Yeontaek Choi & Changhoon Lee, "Geometric nature of particle trajectory in isotropic turbulence," *63rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2010
47. Ohjoon Kwon, & Changhoon Lee, "Effect of inter-particle collision in particle-laden homogeneous isotropic turbulence," *63rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2010
48. Youngho Suh, & Changhoon Lee, "Effects of deformation on drag and lift forces acting on a droplet in a shear flow," *63rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2010
49. Byunggu Kim, & Changhoon Lee, "Large-eddy simulation of urban boundary layer flow over complex topologies," *62nd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2009

50. Yongnam Park, & Changhoon Lee, "Decomposition of fluid acceleration by rotational and irrotational motion in isotropic turbulence," *62nd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2009
51. Youngho Suh, & Changhoon Lee, "Calculation of drag and lift for a deformable droplet in a shear flow," *62nd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2009
52. Yongnam Park, & Changhoon Lee, "On the modification of particle dispersion in isotropic turbulence by free rotation of particle," *61st Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2008
53. Sungki Cho, & Changhoon Lee, "Behavior of small heavy particles in isotropic turbulence in the presence of gravity," *61st Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2008
54. Changhoon Lee, Taeki Min & John Kim, "Stability of a channel flow subject to blowing and suction in the form of a traveling wave," *60th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2007
55. Yeontaek Choi & Changhoon Lee, "Helicity in isotropic turbulence," *59th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2006
56. Byunggu Kim & Changhoon Lee, "Direct numerical simulations of stably stratified turbulent boundary layers at high Re," *59th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2006
57. Yeontaek Choi & Changhoon Lee, "Numerical verification of the possibility of application of Clebsch transformation to the non-canonical turbulence," *58th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2005
58. Byunggu Kim & Changhoon Lee, "Turbulence suppression in a stably stratified boundary layer," *58th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2005
59. Changhoon Lee, "Acceleration, enstrophy and dissipation in isotropic turbulence," *58th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2005
60. Jaedal Jung & Changhoon Lee, "Dispersion of heavy particles in isotropic turbulence," *58th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2005
61. Kyungmin Yeo & Changhoon Lee, "On the modification of near-wall structures in stably stratified turbulence," *57th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2004
62. Byunggu Kim & Changhoon Lee, "A Lagrangian dense gas dispersion model for planetary boundary layer," *57th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2004
63. Kyungmin Yeo & Changhoon Lee, "On the anisotropy of Lagrangian acceleration in turbulence," *56th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2003
64. Andrew M. Reynolds, Kyungmin Yeo & Changhoon Lee, "On the accelerations in inhomogeneous turbulence," *56th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2003
65. Byunggu Kim & Changhoon Lee, "On the uniqueness of Lagrangian stochastic model in self-similar boundary layer," *56th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2003
66. Jung-Il Choi, Kyongmin Yeo & Changhoon Lee, "Fluid particle dispersion in turbulent channel flow," *55th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2002

67. Changhoon Lee, "Direct numerical simulation of rough-wall channel flows," *55th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2002
68. Changhoon Lee & John Kim, "Manipulation of viscous sublayer for drag reduction," *53rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2000
69. Youngchwa Seo & Changhoon Lee, "A new compact spectral scheme for turbulence simulations," *53rd Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 2000
70. Changhoon Lee & John Kim, "Turbulent Boundary Layer Control Using the Goore Scheme," *51st Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1998
71. Timothy Berger, Junwoo Lim, John Kim, Changhoon Lee & Haecheon Choi, "Turbulent Boundary Layer Control via the Lorentz Force," *50th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1997
72. Changhoon Lee, John Kim & Haecheon Choi, "Feedback Control of Turbulent Boundary Layers for Drag Reduction," *50th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1997
73. Philip Marcus & Changhoon Lee, "Creation of Jovian Zonal Winds by Forcing and Dissipation," *49th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1996
74. Changhoon Lee, John Kim, David Babcock & Rodney Goodman, "Application of Neural Network to Turbulence Control," *49th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1996
75. John Kim, Changhoon Lee, Timothy Berger, Junwoo Lim & Haecheon Choi, "Turbulence Control Using Electro-Magnetic Forces," *49th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1996
76. John Kim, Changhoon Lee, Timothy Berger, Junwoo Lim & Haecheon Choi, "Effects of Electro-Magnetic Force on Near-Wall Turbulence," *48th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1995
77. Changhoon Lee, John Kim, David Babcock & Rodney Goodman, "Application of Neural Network to Turbulence Control," *48th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1995
78. Philip Marcus & Changhoon Lee, "Formation of large-scale zonal flows from small-scale forcings on a  $\beta$ -plane," *48th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1995
79. Philip Marcus & Changhoon Lee, "Formation of Asymmetric Jets in a Rotating Flow," *47th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1994
80. Philip Marcus & Changhoon Lee, "Vortices, Rossby Waves, and Jets," *47th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1994
81. Changhoon Lee & Philip Marcus, "Onset of Chaos in a Rapidly Rotating Tank," *44th Annual Meeting of the American Physical Society Division of Fluid Dynamics*, 1991

## INVITED TALKS

1. Changhoon Lee, "Data-driven learning of turbulence," *AJK Joint Fluids Engineering Conference 2023*, Osaka, 2023
2. Changhoon Lee, "Data-driven learning of turbulence," *KSME Fluid Engineering Division 2023 Spring Conference*, Seoul, 2023
3. Changhoon Lee, "AI for turbulence," Hanyang University, Department of Mechanical Engineering, 2022
4. Changhoon Lee, "AI for turbulent flows," *CFD Short Course*, Korean Society of Computational Fluid Engineering, 2022
5. Changhoon Lee, "Deep learning and turbulence," *A.I. Winter School of KSME*, Korean Society of Mechanical Engineers, 2022
6. Changhoon Lee, "AI and turbulence," *Annual Conference of Korean Society of Mechanical Engineers*, Gwangju, 2021
7. Changhoon Lee, "Finite-time blowup in particle-laden turbulence," *Samsung Annual Forum 2020*, KAST, online, 2020
8. Changhoon Lee, "Deep learning of turbulence," *11th National Congress on Fluids Engineering*, Jeju, Korea, 2020
9. Changhoon Lee, "Finite-time blowup in particle-laden turbulence," *The 24th Frontier Scientists Workshop*, online, 2020
10. Changhoon Lee, "Unsupervised deep learning of turbulence," Seoul National University, Department of Mechanical Engineering, 2020
11. Changhoon Lee, "Deep learning of turbulence," *Korean Association for Particle and Aerosol Research 2019 Conference*, Yongpyung, Korea, 2019
12. Changhoon Lee, "Numerical study of particle-laden turbulence," *Emerging Technologies in Mechanical Engineering 2018*, Jeju, Korea, 2018
13. Changhoon Lee, "Direct numerical simulations of particle-turbulence interactions," *Tenth International Symposium on Turbulence and Shear Flow Phenomena*, Chicago, USA, 2017
14. Changhoon Lee, "Understanding turbulence through direct numerical simulation of particle-laden turbulence," *The 7th International Symposium on Fluid Machinery and Fluids Engineering*, Jeju, Korea, 2016
15. Changhoon Lee, "Numerical Study of Particle-Turbulence Interactions," *A3 Foresight Program "Workshop on Vortex Dynamics and Turbulence"*, 2016
16. Changhoon Lee, "Direct Simulation of Sedimenting Droplets in the Air," *2014 KIAPS International Symposium*, 2014
17. Changhoon Lee, Yongnam Park & Itzhak Fouxon, "Direct Numerical Simulation of Droplets Sedimenting in Cloud Turbulence," *The 10th Asian Computational Fluid Dynamics Conference*, 2014
18. Changhoon Lee, Yongnam Park & Itzhak Fouxon, "Effect of gravity on the interaction between turbulence and particles," *2014 Summer School and International Symposium on Fundamental Issues of Multiphase Flows*, 2014

19. Changhoon Lee, "Numerical Simulation of Particle-Laden Turbulence," Seoul National University, Department of Mechanical Engineering, 2014
20. Changhoon Lee, "Vortices and particles in turbulent flows," *International Conference on Boundary and Interior Layers*, 2012
21. Changhoon Lee, "Turbulence and Its Numerical Simulation," Choongang University, Department of Mathematics, 2012
22. Changhoon Lee & Junghoon Lee, "Near-wall characteristics of inertial particles suspended in vertical turbulet channel flow," *The Asian Symposium on Computational Heat Transfer and Fluid Flow*, 2011
23. Changhoon Lee, "Numerical Study of Particle-Turbulence Interactions," *The Korean Society of Industrial and Applied Mathematics Meeting*, 2010
24. Changhoon Lee, "Understanding Turbulence Using Direct Numerical Simulation," *Korean Mathematical Society-American Mathematical Society Joint Conference*, 2009
25. Changhoon Lee, "Urban Dispersion Prediction Model of Chemical and Biological Weapon," *Korean Society of Chemical, Biological and Radiological Defense Symposium*, 2009
26. Changhoon Lee, "ABEEK Program of Yonsei University Mechanical Engineering," *Korean Society of Mechanical Engineers Spring Conference*, 2009
27. Changhoon Lee, "DNS Study of Particle-laden Turbulence," *Korean Society of Mechanical Engineers Spring Conference*, 2008
28. Changhoon Lee, "Numerical Simulation of Turbulent Flows," Hanyang University, Department of Mechanical Engineering, 2004
29. Changhoon Lee, "Turbulence and Zonal Flow," Pohang Institute of Science and Technology, Department of Physics, 2004
30. Changhoon Lee, "A New Compact Spectral Scheme for Turbulence Simulations," Korea Advanced Institute of Science and Technology, Department of Mechanical Engineering, 2002
31. Changhoon Lee, "Zonal Flow Dynamics," Soongsil University, Department of Physics, 2001
32. Changhoon Lee, "Dispersion Model of Chemical and Biological Weapon in Urban Area," *Korean Society of Chemical, Biological and Radiological Defense Symposium*, 2001

## INTERNATIONAL CONFERENCE (other than APS)

1. Jun Park & Changhoon Lee, "Effect of data conditioning and transformation on deep neural network performance for high resolution precipitation prediction," *American Geophysical Union Annual Meeting 2024*, Washington D.C., 2024
2. Junhyuk Kim, Hyojin Kim, Jiyeon Kim & Changhoon Lee, "Deep reinforcement learning for large-eddy simulation in turbulent channel flow," *13th Asian Computational Fluid Dynamics Conference 2022*, Jeju, 2022
3. Jiyeon Kim, Junhyuk Kim & Changhoon Lee, "Prediction and control of turbulent flows using deep learning," *Twelfth International Symposium on Turbulence and Shear Flow Phenomena*, Osaka (online), 2022
4. Hyojin Kim, Junhyuk Kim & Changhoon Lee, "Interpretation and prediction for Prandtl number effect in turbulent heat transfer using generative adversarial networks," *Twelfth International Symposium on Turbulence and Shear Flow Phenomena*, Osaka (online), 2022
5. Junhyuk Kim, Hyojin Kim, Jiyeon Kim & Changhoon Lee, "Deep reinforcement learning for large-eddy simulation of wall-bounded turbulence," *Twelfth International Symposium on Turbulence and Shear Flow Phenomena*, Osaka (online), 2022
6. Seulgi Lee & Changhoon Lee, "Finite-time blowup related to particle collision in direct Eulerian simulation," *Twelfth International Symposium on Turbulence and Shear Flow Phenomena*, Osaka (online), 2022
7. Hyojin Kim, Junhyuk Kim & Changhoon Lee, "Super-resolution reconstruction of unpaired turbulence using generative adversarial networks," *25th International Congress of Theoretical and Applied Mechanics*, Milano (online), 2021
8. Seulgi Lee & Changhoon Lee, "Singularity in particle-laden flow," *25th International Congress of Theoretical and Applied Mechanics*, Milano (online), 2021
9. Junhyuk Kim & Changhoon Lee, "Unsupervised learning for turbulent inflow generation," *ASME-JSME-KSME Joint Fluids Engineering Conference 2019*, San Francisco, USA, 2019
10. Junghoon Lee & Changhoon Lee, "Direct numerical simulation of Brownian polymers in near-wall turbulence," *Eleventh International Symposium on Turbulence and Shear Flow Phenomena*, Southampton, UK, 2019
11. Hyunwook Park, Jung-II Choi, Tae Sun Park & Changhoon Lee, "An immersed boundary formulation with two layer based turbulent wall model for RANS simulation," *The 4th International Conference on Computational Design in Engineering*, Seoul, Korea, 2018
12. Sungjin Won & Changhoon Lee, "Numerical investigation of stably stratified turbulent channel flow using large eddy simulation," *The Ninth JSME-KSME Thermal and Fluids Engineering Conference*, Okinawa, Japan, 2017
13. Juwon Jang & Changhoon Lee, "Immersed boundary method for finite-size particle-laden channel flow with heat transfer," *The Ninth JSME-KSME Thermal and Fluids Engineering Conference*, Okinawa, Japan, 2017
14. Hojun Lee & Changhoon Lee, "Numerical simulation of stratified flow past a sphere," *International Conference on Computational Heat, Mass and Momentum Transfer*, Seoul, Korea, 2017
15. Hyeongjun Park & Changhoon Lee, "Modification of turbulence in stably stratified temperature distribution," *International Conference on Computational Heat, Mass and Momentum Transfer*, Seoul, Korea, 2017

16. Hyunwook Park, Jung-II Choi, Changhoon Lee & Tae Seon Park, "An Immersed boundary formulation in a RANS closure for simulating turbulent flow and heat transfer," *The 7th International Symposium on Fluid Machinery and Fluids Engineering*, 2016
17. Myeongheum Kwon & Changhoon Lee, "Effect of particles on critical Rayleigh number in particle-Laden Rayleigh-Bénard convection," *The 7th International Symposium on Fluid Machinery and Fluids Engineering*, 2016
18. Gihun Shim, Seulgi Lee & Changhoon Lee, "Clustering of micro bubbles in isotropic turbulence," *The 7th International Symposium on Fluid Machinery and Fluids Engineering*, 2016
19. Sangro Park & Changhoon Lee, "Vortical structures and particles in Rayleigh-Bénard convection," *Ninth International Symposium on Turbulence and Shear Flow Phenomena*, 2015
20. Hyunwook Park, Changhoon Lee & Jung-II Choi, "Implicit direct forcing for low Reynolds number flow," *Ninth International Symposium on Turbulence and Shear Flow Phenomena*, 2015
21. Junghoon Lee & Changhoon Lee, "Lagrangian statistics of inertial particles in near-wall turbulence," *Ninth International Symposium on Turbulence and Shear Flow Phenomena*, 2015
22. Xiaomin Pan, Changhoon Lee, Kyoungyoun Kim & Jung-II Choi, "Stability of temporal accuracy of semi-implicit projection methods for the time-dependent incompressible Navier-Stokes equation," *The 8th International Congress on Industrial and Applied Mathematics*, 2015
23. Sangro Park & Changhoon Lee, "Interaction between solid particles and fine-scale motion in Rayleigh-Bénard convection," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
24. Hojun Lee, Yongnam Park & Changhoon Lee, "Effect of gravity on the finite-size particles in isotropic turbulence," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
25. Battsetseg Gereltbyamba & Changhoon Lee, "Behavior of inertial particles in the natural convection flow," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
26. Xiaomin Pan, Changhoon Lee, Kyoungyoun Kim & Jung-II Choi, "A semi-implicit fully decoupled method for time-dependent natural convection flows in enclosures," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
27. Juwon Jang & Changhoon Lee, "Particle motion in the quiescent fluid and turbulent channel flow," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
28. Kiyoun Moon & Changhoon Lee, "Large eddy simulation of stably stratified turbulent channel flow," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
29. Seulgi Lee & Changhoon Lee, "Clustering of particles in homogeneous shear turbulence," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
30. Junghoon Lee & Changhoon Lee, "Effect of gravity on particle behavior in horizontal turbulent channel flow," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
31. Hyunwoo Chi & Changhoon Lee, "Numerical investigation of vortex motion using vortex filament method," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015
32. Seungho Song, Changhoon Lee & Jung-II Choi, "The effect of surface obstacles on blast wave propagation," *ASME-JSME-KSME Joint Fluids Engineering Conference 2015*, 2015

33. Changhoon Lee, Yongnam Park & Itzhak Fouxon, "Direct Simulation of Sedimenting Droplets in the Air," *1st Joint Conference of A3 Foresight Program*, 2014
34. Seulgi Lee & Changhoon Lee, "DNS of homogeneous shear turbulent flow with suspended particles," *2014 International Aerosol Conference*, 2014
35. Juwon Jang & Changhoon Lee, "Direct numerical simulation of a finite particle motion in quiescent channel with the virtual boundary method," *2014 International Aerosol Conference*, 2014
36. Yongnam Park & Changhoon Lee, "Immersed boundary method for small-size particles in isotropic turbulence," *2014 International Aerosol Conference*, 2014
37. Xiaomin Pan, Changhoon Lee, Kyoungyoun Kim & Jung-II Choi, "Analysis of a second-order accurate projection methods for the incompressible Navier-Stokes equations," *International Congress of Women Mathematicians*, 2014
38. Battsetseg Gereltyamba & Changhoon Lee, "Numerical simulation of natural convection in a cubic cavity," *International Congress of Women Mathematicians*, 2014
39. Junghoon Lee & Changhoon Lee, "Particle-turbulence interaction in near-wall turbulence," *Eighth International Symposium on Turbulence and Shear Flow Phenomena*, 2013
40. Abouelmagd Abdelsamie & Changhoon Lee, "Stationary and decaying turbulence modulation by finite-size fully resolved particles," *International Conference on Multiphase Flow*, 2013
41. Junghoon Lee & Changhoon Lee, "Particle-turbulence interaction in near-wall turbulence," *International Conference on Multiphase Flow*, 2013
42. Yongnam Park & Changhoon Lee, "Effect of gravity on the dispersion of heavy particles," *International Conference on Multiphase Flow*, 2013
43. Jung-II Choi, Changhoon Lee & Jack Edwards, "Particle Re-suspension due to Human Walking," *The 8th KSME-JSME Thermal and Fluids Engineering*, 2012
44. Junghoon Lee & Changhoon Lee, "Acceleration modification of near-wall turbulence by heavy particles," *The 8th KSME-JSME Thermal and Fluids Engineering*, 2012
45. Kiyoun Moon, Jung-II Choi, Woopyung Jeon & Changhoon Lee, "Large eddy simulation of turbulent flow over urban like obstacle using immersed boundary method," *The 8th KSME-JSME Thermal and Fluids Engineering*, 2012
46. Hyunwook Park, Changhoon Lee & Jung-II Choi, "Effect of wall proximity on drag and lift forces on a circular cylinder," *The 8th KSME-JSME Thermal and Fluids Engineering*, 2012
47. Sangro Park & Changhoon Lee, "A new projection method with no iteration for Poisson equation for incompressible flows," *The 8th KSME-JSME Thermal and Fluids Engineering*, 2012
48. Yongnam Park & Changhoon Lee, "Effect of gravity on the dispersion of heavy particles," *The 8th KSME-JSME Thermal and Fluids Engineering*, 2012
49. Youngho Suh & Changhoon Lee, "Calculation of drag and lift acting on a deformable droplet in a shear flow," *The 8th KSME-JSME Thermal and Fluids Engineering*, 2012

50. Yongnam Park, Yeontaek Choi & Changhoon Lee, "Geometric nature of particle trajectories in isotropic turbulence," *Seventh International Symposium on Turbulence and Shear Flow Phenomena*, 2011
51. Youngho Suh & Changhoon Lee, "Numerical study on deformation behavior of a fluid particle under shear flow," *ASME-JSME-KSME Joint Fluids Engineering Conference*, 2011
52. Kiyoung Moon, Byunggu Kim & Changhoon Lee, "Large-eddy simulation of turbulent flows in an urban street canyon," *"Air Quality Modeling in Asia 2011" International Conference & Training*, 2011
53. Yeontaek Choi, Yongnam Park & Changhoon Lee, "A role of helicity in turbulent diffusion," *Sixth International Symposium on Turbulence and Shear Flow Phenomena*, 2009
54. Yongnam Park & Changhoon Lee, "Effect of lift force on the motion of heavy particles in isotropic turbulence," *The Seventh JSME-KSME Thermal and Fluids Engineering Conference*, 2008
55. Yeontaek Choi, Byunggu Kim & Changhoon Lee, "Intermittency of helicity and connection with the highly rotational structures in isotropic turbulence," *Fifth International Conference on Computational Fluid Dynamics*, 2008
56. Byunggu Kim, Jongsu Kim & Changhoon Lee, "Lagrangian stochastic model for buoyant gas dispersion in a simple geometric chamber," *World Conference of Safety of Oil and Gas Industry*, 2007
57. Hyo-il Jung & Changhoon Lee, "Computer simulation of magnetic labeled apoptotic cell separation in microfluidic system," *Gordon Research Conference on MEMS Technology and Biomedical Applications*, 2006
58. Byunggu Kim & Changhoon Lee, "Modification of near-wall turbulence by stable stratification," *Parallel Computational Fluid Dynamics*, 2006
59. Byunggu Kim & Changhoon Lee, "A Lagrangian particle model for heavy gas dispersion in the atmospheric boundary layer," *The Sixth KSME-JSME Thermal and Fluids Engineering Conference*, 2005
60. Byunggu Kim & Changhoon Lee, "Modification of near-wall turbulent characteristics under stable stratification," *The Sixth KSME-JSME Thermal and Fluids Engineering Conference*, 2005
61. Kyoungmin Yeo & Changhoon Lee, "Acceleration statistics in turbulent channel flow," *The Fifth Asian Computational Fluid Dynamics Conference*, 2003
62. Byunggu Kim & Changhoon Lee, "Motion of a heavy particle in the shear flow near a flat wall," *The Fifth Asian Computational Fluid Dynamics Conference*, 2003
63. Byunggu Kim & Changhoon Lee, "Lagrangian dispersion model based on elliptic relaxation in the atmospheric boundary layer," *Third International Symposium on Turbulence and Shear Flow Phenomena*, 2003

**DOMESTIC CONFERENCE (in Korean)**

About 140 conference papers