

## TALKS

1. **April 20 - April 22 (2018)** Presented a special lecture (Korean Science Prize) "Mathematical Challenges for Collective Dynamics" at KMS Spring conference, Kyunghee University, Korea.
2. **April 16 - April 19 (2018)** Presented a half hour invited talk "local sensitivity analysis for flocking and synchronization models" at SIAM Conference on Uncertainty Quantification", Hyatt Regency-Orange County, Garden Grove, CA, USA.
3. **April 11 (2019)** Presented a one hour invited talk "Synchronization of the Kuramoto model and its generalized models II" at the Applied Math Seminar of Department of Math. UW-Madison.
4. **Mar. 21 (2018)** Presented a one hour talk "Looking for order hidden in nature at KAOS foundation, Seoul.
5. **Oct. 28 -Oct. 30 (2017)** Presented a one hour invited talk "Emergent dynamics of synchronization models" at International Conference on Nonlinear Analysis, Institute of Mathematics, Academia Sinica, Taiwan.
6. **July 17th-20th (2017)** Presented a one hour invited talk "Unified approach for aggregation, flocking and synchronization" 2017 Summer School on Applied and Stochastic Analysis for Partial Differential Equations, Institute of Natural Sciences, Shanghai Jiao Tong University, Shanghai, China 2017.
7. **July 9th - July 14th (2017)** Presented a one hour invited talk "Nonlocal PDEs arising from collective dynamics" in the session "Free Boundary Problems in Gas Dynamics, MHD and Related Topics" in 4th International Conference on Free Boundary Problems: Theory and Applications, Shanghai Jiao Tong University, Shanghai, China 2017.
8. **June 21th-June 22nd(2017)** Presented two invited talks "Unified approach for collective behaviors: flocking and synchronization" at the Department of Mathematics, Harbin Institute of Technology, Harbin 2017, China.
9. **June 12th - June 16th (2017)** Presented an invited talk "Unified approach for collective behaviors" at WASCOM 2017, Bologna Italy.
10. **June 1st (2017)** Presented a Colloquium talk on "Unified approach for collective dynamics: Aggregation, flocking and synchronization" at the Department of Mathematics, Kyungbuk National University.
11. **May 18th - May 20th (2017)** Presented an invited talk "Emergent dynamics of classical and quantum oscillators" at Industrial Workshop on Industrial Mathematics/ICIAM Board Meeting 2017, Valencia Spain.
12. **May 15th - May 19th (2017)** Presented a plenary talk "Unified approach for collective dynamics: Aggregation, flocking and synchronization" at INdAM Workshop on Innovative Mathematical Models and Methods for Industrial Applications. Roma (Italy).
13. **May 11th - May 13th (2017)** Presented an invited talk on "Unified approach for collective dynamics: Aggregation, flocking and synchronization" at Cheonnam University PDE meeting.
14. **May 10th(2017)** Presented a Colloquium talk on "Unified approach for collective dynamics: Aggregation, flocking and synchronization" at the Department of Mathematics, Inha University.
15. **April 10th - April 21st (2017)** Presented a plenary talk "Unified approach for collective dynamics: Aggregation, flocking and synchronization" at the International Conference on Partial Differential Equations-Silkroad Mathematics Center Series, Academy of Mathematics and System Sciences, Chinese Academy of Sciences, China.
16. **April 11th (2017)** Presented a Colloquium talk "Unified approach for collective dynamics:Aggregation, flocking and synchronization" at the Department of Math. National Chungnam Univ. Daejeon.

17. **March 29 (2017)** Presented an hour invited lecture "Emergent dynamics of classical and quantum oscillators" at the Applied Math and Computational Math seminar at Department of Math, UW-Madison.
18. **Mar 23 - 25 (2017)** Presented an hour invited lecture "Emergent dynamics of classical and quantum oscillators" at the workshop "Kinetic Descriptions of Chemical and Biological Systems: Models, Analysis and Numerics" at Iowa State University Department of Mathematics.
19. **Feb. 20th - 24th (2017)** Presented an hour invited lecture "Mathematical Challenges for classical and quantum oscillators" at Vietnam-Korea Workshop on selected topics in Mathematics, Da Nang, Vietnam.
20. **Jan. 9th - 13th (2017)** Presented an hour invited lecture "Mathematical Challenges for classical and quantum oscillators" at Workshop on collective dynamics of multi-agent systems: Modeling, analysis and applications. Tsinghua Sanya International Mathematics Forum (TSIMF).
21. **Jan. 6th (2017)** Presented an hour invited lecture "Mathematical Challenges for classical and quantum oscillators" at TMS annual meeting. National Central University, Taiwan.
22. **Dec. 28th (2016)** Presented an hour invited talk on "Some critical phenomena in the Cucker-Smale model" at Chinese Academy of Sciences, Korea.
23. **Dec. 10th - Dec. 11th (2016)** Presented an hour invited lecture "Mathematical Challenges for classical and quantum oscillators" at TMS annual meeting, Donghua Univ., Taiwan.
24. **Dec.1st (2016)** Presented an hour colloquium talk on "Mathematical Challenges for classical and quantum oscillators" at Dept. of Math. Ewha University, Korea.
25. **Nov.14th - Nov. 16th, (2016)** Presented an hour invited lecture "Mathematical Challenges for classical and quantum oscillators" at A3 meeting, Tohoku University, Sendai Japan.
26. **Nov.14th - Nov. 16th, (2016)** Presented an hour invited lecture "Mathematical Challenges for classical and quantum oscillators" at A3 meeting, Tohoku University, Sendai Japan.
27. **Nov. 3, (2016)** Presented an hour colloquium lecture "Mathematical Challenges for classical and quantum oscillators" at the Department of Mathematical Sciences, KAIST, Daejeon Korea.
28. **October 6th, (2016)** Presented an hour lecture "Mathematical Challenges for classical and quantum oscillators" at Seoul Science High School, Seoul Korea.
29. **September 23rd, (2016)** Presented an hour colloquium lecture "Mathematical Challenges for classical and quantum oscillators" at the Department of Mathematics, Ajou University, Suwon Korea.
30. **August 18th - 19th, (2016)** Presented a three hour invited lectures "Collective dynamics of many-body systems (Flocking and Synchronization)" at the Department of Mathematics, Harbin Institute of Technology, Harbin, China.
31. **August 8th, (2016)** Presented an hour invited talk "Recent progress on the classical and quantum synchronization" at the Department of Mathematics, Wuhan University, Wuhan, China
32. **July 4 - July 12 (2016)** Presented an hour invited talk "Recent progress on the classical and quantum synchronization" 2nd Korea-France Joint meeting at Universite de Bordeaux, France
33. **June 16 - June 17 (2016)** Presented a three hour lectures "Mathematics of flocking and synchronization" at Preparation minischool for CMC conference: Analysis, Geometry and Optimal Transport at KIAS
34. **May 26 - May 28 (2016)** Presented an invited talk "Some critical phenomena in the Cucker-Smale model" at Kinetic Theory and Fluid Dynamics: from micro- to macroscopic modeling at Kyoto Univ. Japan

35. **April 1 (2016)** Presented an invited talk "ODE and PDE models for quantum synchronization" at CMAC, Yonsei University, Korea.
36. **Jan. 12 (2016)** Presented an colloquium talk "Some mathematical problems arising from collective dynamics of complex systems" at Department of Applied Mathematics, National Chiao Tung University, Taiwan.
37. **Jan. 6 (2016)** Presented an colloquium talk "Some mathematical problems arising from collective dynamics of complex systems" at National Central University, Taiwan.
38. **Dec. 21 (2015)** Presented an colloquium talk "Synchronization of classical and quantum oscillators" at National Chengchi University, Taipei Taiwan.
39. **Dec. 9 - Dec. 11 (2015)** Presented a six hour short course "A crash course on flocking and synchronization" at the Department of Math, National Cheng Kung Univ. Tainan, Taiwan.
40. **Dec. 4 (2015)** Presented two colloquium talks "1. How did I choose my research topics ? 2. Some problems arising from collective dynamics" at the Department of Mathematics, Postech, Korea.
41. **Nov. 23 (2015)** Presented an colloquium talk "Some problems arising from collective dynamics" at National Tsinghua University, Taiwan.
42. **Nov. 15 - Nov. 29 (2015)** Presented a six hour short course "A crash course on flocking and synchronization" at National Center of Theoretical Sciences, National Taiwan Univ. Taipei, Taiwan.
43. **October 30-Nov.3rd (2015)** Presented an invited talk "Synchronization of classical and quantum oscillators" at International Conference on Nonlinear Analysis, Institute of Math. Academia Sinica, Taipei, Taiwan.
44. **October 30 (2015)** Presented an hour Dream lecture "Mathematics from Nature" at KFAS, Seoul Korea.
45. **October 26-30 (2015)** Presented an invited talk "Synchronization of classical and quantum oscillators" at Workshop Analysis in Lyon. Lyon, France.
46. **September 24 (2015)** Presented an invited talk "Synchronization of some classical and quantum oscillators" at PDE seminar, Yonsei Univ. Korea.
47. **September 22 (2015)** Presented an invited talk "Synchronization of some classical and quantum oscillators" at Statistical Physics seminar in KIAS, Korea.
48. **September 17 (2015)** Presented an invited talk "Synchronization of some classical and quantum oscillators" at GSSI, Univ. of L'Aquila Italy.
49. **August 24 - August 28 (2015)** Presented one hour invited talk on "Emergence of local flocking states in flocking models" at Korean-French Conference in Mathematics, IBS-Postech, Korea.
50. **August 11th (2015)** Presented a three hour lectures "Synthesis of the flocking and synchronization at Department of Math. Harbin Institute of Technology. China.
51. **July 13 - July 20 (2015)** Presented a three hour lectures "Synthesis of the flocking and synchronization: From Winfree to Cucker-Smale" at Department of Math. Univ. of Bielefeld. Germany.
52. **July 6 - July 10 (2015)** Presented two invited talks "Complete synchronization of classical and quantum oscillators" and "Emergent behaviors of Cucker-Smale flocking particles" at Equadiff 2015 Conference in Lyon, France.
53. **June 1 - June 5 (2015)** Presented an hour invited talk "Flocking behavior of the Cucker-Smale model" XVIII International Conference on waves and stability in continuous media-WASCOM2015 at Grand Hotel San Michele Cetraro (Cosenza, Italy).

54. **May 27-29 (2015)** Presented three hour lectures on "Synthesis of Cucker-Smale flocking and Kuramoto synchronization in an unified framework" at the Dept of Math, Univ. of Granada Spain.
55. **April 15th (2015)** Presented a colloquium talk "Eight years' journey of flocking and synchronization (From Winfree to Lohe) " at the Dept of Math, Inha Univ. Korea.
56. **March 31st (2015)** Presented an invited talk on "Collective behaviors of complex systems" at Chemical and biological engineering of SNU, Korea.
57. **Feb. 9th - Feb. 13th (2015)** Presented five lectures on "Introduction to kinetic equations and their applications" at 2015 PDE winter school at CAMP of NIMS, Daejeon Korea.
58. **Feb. 6th (2015)** Presented a 40 min talk on "Cha-Cha-Cha together with Mathematics" at Open lectures on Natural Sciences, Seoul National Univ.
59. **Jan. 22nd (2015)** Presented an invited talk on "Stability and instability of the incoherent solution to the kinetic Kuramoto-Sakaguchi model)" at GSSI, L'Aquila, Italy.
60. **Jan. 5th - Jan. 9th (2015)** Presented a plenary talk on "Collective dynamics of many-body systems (Lyapunov functional approach)" at Workshop on Frontier Mathematical Problems in Network, Tsinghua Sanya Conference Center, Sanya Hainan, China.
61. **Dec. 24th (2014)** Presented an invited talk on "Stability and instability of the incoherent solution to the kinetic Kuramoto equation" at the Department of Math. Chinese Univ. of Hong Kong, HK.
62. **Dec. 23th (2014)** Presented an invited talk on "Flocking dynamics of hydrodynamic Cucker-Smale type models" at the PDE seminar of City Univ. of Hong Kong, HK.
63. **Dec. 13th (2014)** Presented an invited talk on "Stability and instability of the incoherent solution to the kinetic Kuramoto equation" at KIAS, Seoul, Korea.
64. **Dec. 4th (2014)** Presented an invited talk on "Some math problems arising from synchronization" at Wuhan Institute of Physics and Mathematics, Wuhan, China.
65. **Dec.2nd (2014)** Presented an invited talk on "Synchronization of Winfree and Kuramoto oscillators" at the Department of Math, Wuhan University, Wuhan, China.
66. **Nov. 13th (2014)** Presented a colloquium talk on "Some math problems arising from collective motions of self-propelled particles" at the Department of Math, Kyeonghee University, Seoul, Korea.
67. **Nov. 10th (2014)** Presented an invited talk on "Synchronization of Winfree and Kuramoto oscillators" at the PDE seminar of the Department of Math, Yonsei University, Seoul, Korea.
68. **Oct. 16th (2014)** Presented a colloquium talk on "flocking, synchronization and game theory" at the Department of Math, Sogang University, Seoul, Korea.
69. **Aug. 13th - Aug. 21st (2014)** Presented an invited talk on "Lyapunov functional approach and collective dynamics of interacting particle systems" at ICM 2014, Coex, Korea.
70. **Aug. 10th - Aug. 12th (2014)** Presented an invited talk on "Synchronization of quantum oscillators" at ICM 2014 Satellite Conference "Mathematical Theory of gases and fluids and related applications" at Chung-Ang Univ. Korea.
71. **July 28 - August 1, (2014)** Presented a plenary talk on "Lyapunov functional approach and collective dynamics of interacting many-body systems" at 15th International Conference Hyperbolic Problems: Theory, Numerics, Applications, IMPA, Rio de Janeiro Brazil.
72. **July 13 - 26, (2014)** Presented one hour invited talk on "Synchronization of Synchronization" at Workshop on Kinetic theory and gas dynamics, Department of Mathematics, Stanford University, China.

73. **June 3 - 8, (2014)** Presented one hour invited talk on "Synchronization of classical and quantum Kuramoto oscillators" at Department of Mathematics, Shanghai Jiaotong Univ. China.
74. **April 4th (2014)** Presented a one hour colloquium talk on "How to synchronize of heart beats of Romeo and Juliet ?" at the Department of Mathematics, Sookmyung Women's Univ.
75. **Mar. 21 - 23 (2014)** Presented a 30 min invited talk on "Synchronization of Kuramoto oscillators" at Kyoto Univ - Chung Ang Univ. Symposium on Nonlinear Partial Differential Equations, Takayama, Gifu Prefecture, Japan.
76. **Feb. 24 - 26 (2014)** Presented a 40 min invited talk on "Synchronization of Kuramoto oscillators" 2nd Joint workshop between SNU and Bielefeld, Univ. of Bielefeld, Germany.
77. **Dec. 27th (2013)** Presented an hour invited talk on "Synchronization of classical and quantum Kuramoto oscillators" at Chinese Academy of Sciences, Beijing China.
78. **Dec. 5th (2013)** Presented an hour colloquium talk on "Synchronization of classical and quantum Kuramoto oscillators" at the dept. of Math. Sungkyunkwan Univ.
79. **Nov. 28 (2013)** Presented an hour colloquium talk on "Synchronization of classical and quantum Kuramoto oscillators" at the dept. of Math. Yonsei Univ.
80. **Nov. 26 (2013)** Presented an hour talk on "Mathematics of Synchronization" at Math. Club in the dept. of Math. Postech.
81. **Oct. 28th - Oct. 30th (2013)** Presented an hour invited talk on "Synchronization of classical and quantum Kuramoto oscillators" at Ukai sense's memorial conference, Kyoto Univ. Japan.
82. **Oct. 21st - Oct. 25th (2013)** Presented an hour invited talk on "Synchronization of classical and quantum Kuramoto oscillators" at International Conference on Nonlinear Analysis: Fluid dynamics and Kinetic theory. Academia Sinica, Taiwan.
83. **Sep. 16th - Sep. 21st (2013)** Presented six intensive lectures on flocking and synchronization at Summer School in Mathematical Physics, Ravello, Italy.
84. **July 1st - July 5th (2013)** Presented a half hour invited talk "Mathematics of Flocking", the 6th Pacific Rim Conference on Mathematics, Sapporo Convention Center, Sapporo, Japan.
85. **June 30th - July 4th (2013)** Presented a one hour Plenary talk "Mathematics of Flocking" at AMC meeting, Busan Korea.
86. **June 24th - June 28th (2013)** Presented two one hour invited talks "Coupled kinetic-fluid models for flocking" and " $L^2$ -stability of the Boltzmann equation near a global Maxwellian " at 2013 Second PRIMA, Shanghai Jiao Tong Univ. China.
87. **June 9th - June 14th (2013)** Presented a one hour invited talk " $L^2$ -stability of the Boltzmann equation near a global Maxwellian " at BIRS Workshop on Nonlinear conservation laws and related models, Banff Canada.
88. **Feb. 4(2013)** Presented a one hour invited talk "Complete synchronization of Kuramoto oscillators on networks" at Wuhan Institute of Physics and Mathematics.
89. **Feb. 1 and 4(2013)** Presented two one hour invited talks "Uniform  $L^1$ -stability of the relativistic Boltzmann equation" and "The Cucker-Smale flocking model coupled with bonding force, noises and fluids" at Workshop on kinetic and related models, Department of Math, Wuhan Univ.
90. **Jan. 24th (2013)** Presented a one hour invited talk "Uniform  $L^1$ -stability of the relativistic Boltzmann equation" at PDE-seminar of Institute of Math. Academia Sinica. Taiwan.

91. **Jan. 23th (2013)** Presented a one hour invited talk "Uniform  $L^1$ -stability of the relativistic Boltzmann equation" at NCTS-seminar of National Cheng Kung Univ. Taiwan.
92. **Jan. 4th (2013)** Presented a one hour invited talk "Analysis and related fields in SNU" at the Kyoto Core-to-Core meeting, Kyoto.
93. **Dec. 21 (2012)** Presented a one hour invited talk " $L^1$ -scattering and stability of the Vlasov-Poisson-Boltzmann system" at Chinese Academy of Science, Beijing.
94. **Dec. 6 (2012)** Presented a one hour invited talk " $L^1$ -scattering and stability of the Vlasov-Poisson-Boltzmann system" at the department of Business. UNIST.
95. **Oct. 29 - Nov. 2nd (2012), Evolutionary PDE and Kinetic Theory:** Presented a one hour invited talk "The Cucker-Smale flocking model coupled with bonding force, noises and fluids" at the Institute of Mathematics, Academia Sinica.
96. **Oct. 17-21 (2012), Mini-Workshop on Nonlinear Synchronization, 2012 12th International Conference on Control, Automaton and Systems:** Presented a one hour invited talk "Complete synchronization of Kuramoto oscillators on networks" at Jeju Convention Center.
97. **September 24-28(2012), Kinetic Theory and Related Fields:** Presented a one hour invited talk "Complete synchronization of Kuramoto oscillators on networks" at the department of mechanical engineering, Kyoto Univ.
98. **August 30(2012)** Presented a one hour invited talk " $L^1$ -scattering and stability of the Vlasov-Poisson-Boltzmann system" at the department of Math. Harbin Institute of Technology.
99. **August 29(2012)** Presented a one hour invited talk "Mathematics of synchronization" at the department of Math. Harbin Institute of Technology.
100. **July 8 - 28 (2012), Workshop on kinetic theory and gas dynamics:** Presented a one hour invited talk " $L^1$ -scattering and stability of the Vlasov-Poisson-Boltzmann system" at Stanford Univ. USA (July 19th).
101. **June 25 - 29 (2012), HYP 2012:** Presented a 40 min invited talk "Complete synchronization of particle and kinetic Kuramoto models on networks" at Univ. of Padova, Italy.
102. **April.16-20 (2012), International Conference on Applied Mathematics:** Presented a 30 min invited talk "Complete synchronization of Kuramoto oscillators on a network" at Shanghai Jiao Tong Univ., Shanghai China.
103. **Jan. 22-27 (2012), Emergent behavior in multi-particle systems with non-local interactions:** Presented a 30 min invited talk "Asymptotic formation of multi-clusters for the Cucker-Smale and Kuramoto models" at Banff Conference Center, Canada.
104. **Nov. 14-17 (2011), 2011 SIAM Conference on Analysis of PDEs:** Presented an 25 min invited talk " $L^1$ -stability and instability of the Boltzmann and Vlasov-Poisson equations" at the session "Multidimensional Conservation Laws and Related Applications", Marriott San Diego Mission Valley San Diego, USA.
105. **Oct. 17-21 (2011), Applications of Kinetic Theory and Computation:** Presented an invited talk on "Recent progress of some flocking and synchronization models: Cucker-Smale and Kuramoto models" at the Institute for Computational and Experimental Research in Mathematics(ICERM), Brown University, USA.
106. **June 10-11 (2011), Dynamics System in Brain: Mathematical Approach:** Presented an invited talk on "Mathematical theory of flocking and synchronization" at Rivera Hotel, Daejeon.

107. **May 24-27 (2011), Modeling and Control of Nonlinear Evolution Equations:** Presented an invited talk on " $L^p$ -stability and instability results of some kinetic equations" at SISSA, Trieste, Italy.
108. **May 2-3 (2011), The 11th International Workshop on Differential Equations:** Presented an invited talk on "Large-time dynamics of particle models arising from flocking and synchronization" at Department of Math, Chonnam National University.
109. **April. 14-16th (2011), Then 9th symposium between KAST and RSAS:** Presented an invited talk on "Collective behaviors of complex systems: Flocking and Synchronization" at the Royal Swedish Academy of Sciences, Stockholm, Sweden.
110. **March. 24th (2011), Math department Colloquium:** Presented a colloquium talk on "From particle to kinetic and fluids" at the Department of Mathematical Sciences, SNU.
111. **March. 9th (2011), Physics Department Colloquium:** Presented an colloquium talk on "Mathematics of flocking and synchronization" at the Department of Physics and Astronomy, SNU.
112. **Feb. 23rd (2011), Compressible Fluid seminar:** Presented invited talk on "Existence and stability of phase-locked states for the Kuramoto model" at the Institute of Applied Mathematics and Systems Sciences, Chinese Academy of Science, Beijing China.
113. **Feb. 22nd (2011), Compressible Fluid seminar:** Presented invited talk on "Mathematics of flocking and synchronization" at the Institute of Applied Mathematics and Systems Sciences, Chinese Academy of Science, Beijing China.
114. **Jan. 14th (2011), Statistical physics seminar:** Presented invited talk on "Existence and stability of phase-locked states for the Kuramoto model" at the Department of Physics, Korea University, Seoul Korea.
115. **Jan. 12th (2011), Sociology seminar:** Presented invited talk on "Mathematical Modeling of emergent phenomena" at the Department of Sociology, Yeonse Univ. Seoul Korea.
116. **Dec. 16th (2010), PDE seminar:** Presented invited talk on "Existence and stability of phase-locked states for the Kuramoto model" at the Department of Mathematics, Univ. of L'Aquila, Italy.
117. **Dec. 8 - Dec. 11 (2010), Hot topic workshop on Applied Dynamical Systems:** Presented invited talk on "Existence and stability of phase-locked states for the Kuramoto model" at the National Institute of Mathematical Sciences, Daejeon, Korea.
118. **Nov. 29 - Dec 3 (2010), Workshop on kinetic equations and hyperbolic conservation laws:** Presented invited talk on "Existence and stability of phase-locked states for the Kuramoto model" at the Institute of Mathematical Sciences, National University of Singapore, Singapore.
119. **Nov. 18th (2010), Colloquium:** Presented invited talk on "Existence and stability of phase-locked states for the Kuramoto model" at the Department of Math, Sungkyunkwan Univ.
120. **Oct. 28th (2010), Sociology seminar:** Presented invited talk on "Mathematical Modeling of emergent phenomena" at the Department of Sociology, SNU.
121. **August 23rd (2010), PDE seminar:** Presented invited talk on "Flocking and Synhchronization" at the Issac Newton Institute, Cambridge. England.
122. **August 2nd (2010), Analysis seminar:** Presented invited talk on "Quantitative estimates on the complete synchronization of the Kuramoto oscillators" at the Institute of Mathematics, Academia Sinica. Taiwan.
123. **June 28 - July 2 (2010), 5th Pacific Rim Conference on Mathematics:** Presented invited talk on "Complete synchronization of the Kuramoto oscillators" at the Department of Mathematics, Stanford Univ. USA.

124. **June 23 (2010), Stanford Summer workshop on Kinetic theory:** Presented invited talk on "Mathematics of Flocking" at the Department of Mathematics, Stanford Univ. USA.
125. **May 31 - June 4 (2010), DSPDEs'10: Emerging Topics in Dynamical Systems and Partial Differential Equations:** Presented two invited talks in special sessions "Kinetic theory and related topics" and "Mathematical Models of Biological Aggregations" on " $L^2$ -stability theory of the Boltzmann Equation near a global Maxwellian" and Complete synchronization of the Kuramoto phase model" at Barcelona, Spain.
126. **May 25 - 28 (2010), 8th AIMS International Conference on Dynamical Systems, Differential Equations and Applications:** Presented an invited talk in special session "Nonlinear Partial Differential Equations and Applications" on "Complete synchronization of the particle and kinetic Kuramoto model" at Dresden, Germany.
127. **April 28 - May 1 (2010), KAIST PDE Conference:** Presented invited talk on "Complete synchronization of the Kuramoto model" at the Department of Mathematical Sciences, KAIST, Korea.
128. **April 9(2010), Colloquium:** Presented an invited talk on "Mathematics of Flocking and Synchronization" at the Department of Math. Postech, Korea.
129. **April 3(2010), KIAS Statatcal Physics Monthly seminar:** Presented an invited talk on "Complete synchronization of the Kuramoto oscillators" at the Department of Physics, KIAS, Seoul.
130. **March 18 - 20 (2010), Cheonnam Univ PDE workshop:** Presented an invited talk on "Complete synchronization of the Kuramoto phase model" at the Department of Math. Cheonnam National Univ., Kwangju, Korea.
131. **Feb. 23 - 24 (2010), Workshop on Consensus, Flocking and Synchronization of interaction particle system:** Presented an invited talk on "Complete synchronization of the Kuramoto phase model" at the Department of Mathematical Sciences, Korea.
132. **Feb. 17 - 19 (2010), NIMS winter school:** Presented three hour lectures on "Flocking and Synchronization" at SNU, Korea.
133. **Dec. 22 - 24 (2009), Workshop on Kinetic Theory:** Presented three hour lectures on "Vlasov equation and its derivation" at Mujoo resort, Korea.
134. **Dec. 14 - 18 (2009), East PDE conference:** Presented invited talk on "Complete synchronization of the Kuramoto model" at Chinese University of Hong Kong, Hong Kong.
135. **Nov. 16-18 (2009), Workshop "Theory and Numerics of Kinetic Equations:** Presented invited talk on "Complete synchronization of the Kuramoto model" at University of Saarland, Saarbruecken, Germany.
136. **October 29-30 (2009), 2009 Korea Mathematical Biology regular meeting:** Presented invited talk on "The complete synchronization estimate for the globally coupled Kuramoto model" at the Rivera Hotel, Daejeon Korea.
137. **October 5-9 (2009), Nonlinear Conservation Laws and Related Problems:** Presented an hour invited talk on "The complete synchronization estimate for the globally coupled Kuramoto model" at the Banff International Research Station, Banff Canada.
138. **August 17-21 (2009), The International Conference on PDE in Fluid dynamics and Related Field:** Presented invited talk on "The complete synchronization estimate for the globally coupled Kuramoto model" at the Department of Mathematics, Northeast Dianli University, Jilin, China.
139. **June 25-28 (2009), International Conference on Applied Analysis and Scientific Computation:** Presented an invited talk on "Synchronization and flocking of particle and kinetic models", at Shanghai Normal University, Shanghai China.



140. **June 19 (2009), PDE seminar:** Presented an invited colloquium on "Synchronization and flocking of particle and kinetic models" at Institute of Mathematical Sciences, Chinese University of Hong Kong, Hong Kong.
141. **June 4 (2009), Colloquium:** Presented an invited colloquium on "Synchronization and flocking of particle and kinetic models" at the Department of Mathematics, Konkuk University, Seoul, Korea.
142. **May 21 (2009), PDE seminar:** Presented an hour invited talk on "On the damped Vlasov-Klein-Gordon system" at the Department of Mathematics, Univ. of Sunkyunkwan Univ., Suwon, Korea.
143. **May 13th (2009), Workshop on Analysis between Korea and Australia:** Present an hour invited talk on "Flocking and synchronization of particle and kinetic models" at Bexco convention center, Pusan, Korea.
144. **May 8th (2009), NIMS seminar:** Presented an hour invited talk on "On the damped Vlasov-Klein-Gordon system" at NIMS, Daejeon, Korea.
145. **April 30th, Colloquium:** Presented an invited colloquium on "Mathematical Analysis and modeling of flocking phenomena" at the Department of Mathematics, Chosun University, Kwangju, Korea.
146. **April 3 (2009), The international Conference on Kinetic and Related Models:** Presented an hour invited talk on "On the damped Vlasov-Klein-Gordon system " at the Department of Mathematics, Wuhan University, China.
147. **March 26 (2009), Workshop on Real and virtual ecosystem:** Presented an hour invited talk on "On the particle and kinetic modeling of phototaxis" at Livera hotel, Deajeon, Korea.
148. **March 22 (2009), 2009 Workshop on kinetic theory:** Presented an hour invited talk on "Flocking and synchronization of particle models" at the Institute of Mathematics, Academia Sinica, Taipei, Taiwan
149. **February 19 (2009), PDE seminar:** Presented an hour invited talk on "On the finite-time blow up of the compressible Euler equations" at the Department of Mathematics, Univ. of L'Aquila, Italy.
150. **January 29 - 30 (2009), NIMS Winter School:** Presented a three-hour lectures on "Mathematics of Flocking" at the Department of Mathematical Sciences, KAIST, Korea.
151. **January 8 (2009), PDE seminar** Presented an invited talk on "From particle to kinetic and fluid descriptions on flocking" at the Department of Mathematics, National Taiwan University, Taiwan.
152. **December 27 - Dec. 31 (2008), The third workshop on "Nonlinear Partial Differential Equations: Analysis, Computation and Application:** presented an invited talk on "A simple proof of Cucker-Smale flocking and its mean-field limit" at the Department of Mathematics, Northwest University, Xi'an China.
153. **December 23 (2008), Kinetic Theory Day:** Presented an invited talk on "Mathematics of flocking" at the Institute of Mathematics, Academia Sinica, Taiwan.
154. **December 12 - 15 (2008), International Conference on Conservation Laws and Kinetic Theory:** presented an invited talk on "A simple proof of Cucker-Smale flocking and its mean-field limit" at the Department of Mathematics, Shanghai Jiaotong University, China.
155. **December 8 - 10 (2008), Workshop on Partial Differential Equations and Fluid Mechanics:** Presented an invited talk on "Lyapunov functional for the Cucker-Smale flocking system and mean-field limit" at the Department of Mathematics, Sungkyunkwan University, Korea.
156. **December 5 (2008), Mini Symposium on Mathematical Analysis and Applications:** Presented a one hour talk on "Mathematical Modeling for flocking" at the Department of Mathematics, Inha University, Korea.

157. **October 23 - 25 (2008), 2008 Global KMS International Conference:** Presented a half hour invited talk in special session "Harmonic analysis and applications II" on "A simple proof of Cucker-Smale flocking and its mean-field limit" at Jeju Island, Korea.
158. **May 15 (2008), Mathematics and AMCS Joint Colloquium talk:** Presented a one hour talk on "Kinetic and fluid models for flocking phenomena" at the Department of Mathematics, University of Iowa, USA.
159. **March 21 (2008), Colloquium talk:** Presented a one hour talk on "Mathematical modeling for flocking phenomena and its analysis" at the Department of Mathematics, University of Louisville, USA.
160. **March 10 - March 14 (2008), Workshop on Kinetic theory and hyperbolic conservation laws:** Presented a one hour talk on "Modeling of flocking phenomena and dissipative Vlasov equation" at the Department of Mathematics, Stanford University, USA.
161. **March 7 (2008), PDE/Applied Math Seminar:** Presented a one hour talk on "Modeling of flocking phenomena and dissipative Vlasov equation" at the Department of Mathematics, University of Wisconsin-Madison, USA.
162. **February 14 - February 15 (2008), Franco-Korea PDE meeting:** Presented a one hour talk on " $L^p$ -stability problem for the Boltzmann equation" at the Institute Henri Poincare, France.
163. **October 11 (2007), PDE/Applied Math Seminar:** Presented a one hour talk on "Uniform  $L^p$ -stability problem for the Boltzmann equation" at the Department of Maryland-College Park, USA.
164. **June 8 (2007), IMS PDE Seminar:** Presented a one hour talk on "Nonlinear Functional Approach and  $L^p$ -Stability Problem in Kinetic Theory (IMS PDE Seminar)" at the Institute of Mathematics, The Chinese University of Hong Kong.
165. **May 23 (2007), Applied Mathematics Seminar:** Presented a one hour talk on "Boltzmann's kinetic theory for dilute gases" at the Department of Mathematical Sciences, KAIST. in Korea.
166. **May 21 - May 23 (2007), Workshop on Euler equations:** Presented a half hour invited talk on " $L^2$ -stability of the Boltzmann equation in a global Maxwellian regime" at the Department of Mathematics, Sungkyunkwan Univ. in Korea.
167. **May 10 (2007), Colloquium talk:** Presented a one hour talk on "Kinetic theory for dilute gas dynamics" at the Department of Mathematics, Sungkyunkwan Univ. in Korea.
168. **April 13 (2007), Colloquium talk:** Presented a one hour talk on "Chi-kun Lin's dimension analysis and its application to differential equations and inequalities" at the Department of Mathematics, Hanyang Univ. in Korea.
169. **March 7 (2007), Seminar on Mathematics for various disciplines:** Presented an invited talk on "Stability theory in  $L^p$  for the space-inhomogeneous Boltzmann equation" at Department of Mathematics, University of Tokyo.
170. **March 7 (2007), The 56th National Congress of Theoretical and Applied Mechanics:** Presented an invited talk on "Uniform  $L^p$ -stability of the Boltzmann equation" at Science Council of Japan, Tokyo Japan.
171. **November 3 (2006), Workshop on Mathematical Fluid mechanics:** Presented an invited a one hour lecture on "Uniform  $L^1$ -stability of the Vlasov-Poisson system in dimension three" at Department of Mathematics, POSTECH, Korea.
172. **October 11 (2006), PDE seminar:** Presented an invited one hour lecture on "What is the kinetic theory of dilute gases?" at Department of Applied Mathematics, Hanyang University, Korea.

173. **September 5 (2006), Analysis seminar:** Presented an invited one hour lecture on "Uniform  $L^p$ -stability theory of the Boltzmann equation" at Department of Mathematics, Choongang University, Korea.
174. **August 24 - 26 (2006), The Workshop of NIMS on Partial Differential Equations for Applied Sciences:** Presented an invited talk on "Uniform  $L^p$ -stability theory of the Boltzmann equation" at NIMS in Daejeon Korea.
175. **July 29 - August 3 (2006), International Conference on Nonlinear Evolutionary Partial Differential Equations:** Presented an invited talk on "Uniform  $L^p$ -stability theory of the Boltzmann equation" at Xining in China.
176. **July 26 - 28 (2006), Industrial Mathematics Initiative 2006:** Presented an invited talk on "Remarks on the stability of the kinetic equation" at Department of Applied Math. KAIST.
177. **July 17 - 21 (2006), Eleventh International Conference on Hyperbolic Problems Theory, Numerics, Applications:** Presented an invited talk on "Nonlinear functional approach in kinetic equations" at Ecole Normale Supérieure de Lyon, Lyon, France.
178. **June 12 - 17 (2006), Boltzmann equation and fluid dynamic limit:** Presented an invited talk on "Collision Potentials and Stability estimates of kinetic equations" at SISSA, Italy.
179. **May 26 - 27 (2006), KSIAM 2006 spring meeting:** Presented an invited talk in special session (Navier-Stokes' equations) on "Euler-Poisson system and its application to plasma physics" at Daegu convention center.
180. **April 30 - May 1 (2006), Conference on General Relativity and Shock Wave Theory:** Presented an invited talk on "Remarks on the stability of the Boltzmann equation" at Department of Math. Stanford Univ. USA.
181. **March 22 (2006), Special lecture:** Presented a one hour lecture on "Recent progress on the uniform  $L^1$ -stability of kinetic equations" at Department of Aeronautics, Kyoto University Japan.
182. **February 13 - 16 (2006), Intensive series lectures:** Presented 8 hours talks on "Invitation to hyperbolic conservation laws and kinetic equations" at Department of Mathematics, Ajou University.
183. **January 18 (2006), PDE seminar:** Presented a one hour talk on "Collision potentials and  $L^1$ -stability of kinetic equations" at Wolfgang Pauli Institute, Vienna Austria.
184. **December 12 - 16 (2005), The 2nd International Conference on Scientific Computing and Partial Differential Equations :** Presented an invited talk on "The Boltzmann equation near a local Maxwellian" at Hong Kong Baptist University, Hong Kong.
185. **December 9 (2005), Korea Academy of Science and Technology colloquium:** Presented a one hour talk on "Mathematical Theory of Nonlinear waves of compressible fluids" at Sunggyeunkwan University, Suwon Korea.
186. **November 25-26 (2005), KSIAM 2006 annual meeting:** Presented a half hour talk on "The Boltzmann equation near a local Maxwellian" at Muju resort in Korea.
187. **November 4 (2005), Aeronautics department seminar:** Presented a one hour talk on "Mathematical Theory of Shock Waves" at the Department of Aeronautics, Seoul National Univ. in Korea.
188. **October 28 (2005), Colloquium talk:** Presented a one hour talk on "Mathematical Theory of hyperbolic conservation laws" at the Department of Mathematics, Choongang Univ. in Korea.
189. **August 17-21 (2005), The Third Pacific Rim conference on Mathematics:** Presented an invited talk on "Initial-boundary value problem for the Boltzmann equation near vacuum", Fudan University, Shanghai China.

190. **July 18 (2005), Workshop on Hyperbolic Conservation Laws and Related Topics:** Presented a one hour invited talk on "Large-time behavior of the Vlasov-Poisson-Boltzmann system near vacuum", Institute of Applied Mathematics, AMSS, Academia Sinica, Beijing China.
191. **July 15 (2005), PDE seminar:** Presented a one hour talk on "Collision Potentials and  $L^1$ -stability of some kinetic equations", Department of Mathematics, Capital Normal University, Beijing China.
192. **July 12 (2005), PDE seminar:** Presented a one hour talk on "Large-time behavior of the Vlasov-Poisson-Boltzmann system near vacuum", Department of Mathematics, Fudan University, Shanghai China.
193. **July 6 - 11 (2005), International Conference on Conservation Laws and kinetic theory:** Presented an invited talk on "Collision Potentials and  $L^1$ -stability of some kinetic equations", Department of Mathematics, Shanghai Jiao Tong University, Shanghai China.
194. **June 8-12 (2005), FRG Workshop on Multi-dimensional Hyperbolic Conservation Laws:** Presented an invited talk on "Collision potential and  $L^1$  stability of multi-dimensional repulsive Vlasov-Poisson system" Department of Mathematics, University of Wisconsin at Madison, USA.
195. **June 3 (2005), Colloquium talk:** Presented a one hour talk on "Mathematical Theory of Shock Waves" at the Department of Mathematics, Hanyang Univ. in Korea.
196. **May 19-21 (2005), The 7th International Workshop on Differential Equations:** Presented an invited talk on "New Lyapunov functional and  $L^1$ -stability of the Vlasov-Poisson system at Cheonnam National University.
197. **May 3-6 (2005), Workshop on Nonlinear Partial Differential Equations: Analysis, Computation and Applications:** Presented an invited talk on " $L^1$ -stability theory of the Boltzmann equation at Institute of Mathematical Sciences, National University of Singapore.
198. **April 23 (2005), KMS spring meeting:** Presented an invited talk on " $L^1$ -stability theory of the Boltzmann equation at DanKook University.
199. **December 2004, Cimpa School at Taipei Kinetic equations: from theory to applications:** Presented an hour talk on "New Lyapunov functionals of the Vlasov-Poisson system at Academia Sinica in Taiwan.
200. **December 2004, KSIAM 2004 Annual Meeting and Conference:** Presented a half hour talk on "Dynamics of plasma ion-sheath interface" at Kyeongju in Korea.
201. **November 2004, PDE seminar:** Presented a one hour talk on "Boltzmann and collisional kinetic equations" at the Department of Mathematics, Yeonsei University in Korea.
202. **November 2004, Colloquium talk:** Presented a one hour talk on "Boltzmann and collisional kinetic equations" at the Department of Mathematics, POSTEC in Korea.
203. **November 2004, Colloquium talk:** Presented a one hour talk on "Boltzmann and collisional kinetic equations" at the Department of Mathematics, Inha University in Korea.
204. **September 2004, The sixth international workshop on Mathematical Aspects of Fluid and Plasma Dynamics:** Presented an invited talk on "Nonlinear functionals and the Boltzmann equation at Kyoto University.
205. **July 2004, FRG meeting and Summer workshop on kinetic theory and conservation law:** Presented a one hour invited talk on "Nonlinear functionals of Boltzmann type kinetic equations" at the Math department of Stanford University.
206. **June 2004, Joint Symposium between Seoul National University and Hokkaido University:** Presented a one hour invited talk on "Nonlinear functionals of the Boltzmann equation and uniform stability estimates" at the Math department of Hokkaido university.

207. **June 2004, PDE seminar:** Presented a one hour talk on "Nonlinear functionals of the Boltzmann equation" at Sinica in Taiwan.
208. **May 2004, International conference on Mechanics and PDEs:** Presented a one hour invited talk on " $L^1$ -stability of the Boltzmann equation" at UW-Madison.
209. **February 2004, PDE seminar:** Presented a one hour talk on " $L^1$  stability of collisional kinetic equations" at the Mathematics Institute, Academia Sinica in Taiwan.
210. **December 2003, International Workshop on Nonlinear analysis and Kinetic theory:** Presented a one hour invited talk on " $L^1$ -stability of the Boltzmann equation for a hard sphere model" at Sinica in Taiwan.
211. **November 2003, Colloquium talk:** Presented a one hour talk on "Lyapunov functionals and  $L^1$ -stability in kinetic equations" at the Department of Mathematics, University of Louisville.
212. **October 2003, Workshop on Multi-dimensional Euler equations and conservation laws:** Presented a short communication talk on " $L^1$  stability of the Boltzmann equation for a hard sphere model."
213. **October 2003, PDE seminar:** Presented a one hour talk on " $L^1$  stability of the Boltzmann equation for a hard sphere model" at the Department of Mathematics, University of Maryland at college park.
214. **January 2003, Joint Mathematics Meetings at Baltimore:** Presented an invited talk on " $L^1$  stability of discrete Boltzmann equations" in a SIAM minisymposium on hyperbolic conservation laws and related topics.
215. **October 2002, AMS Sectional Meeting at Madison:** Presented an invited talk on " $L^1$  stability of multi-dimensional discrete Boltzmann equations" in a session on hyperbolic conservation laws and related topics.
216. **May 2002, The fourth international conference on Dynamical Systems and Differential equations:** Presented an invited talk on " $L^1$  stability of discrete Boltzmann equations" in a special session "Hyperbolic systems of Conservation Laws and Related Problems" at Wilmington, North Carolina.
217. **March 2002, The ninth international conference on Hyperbolic Problems: Theory, Numerics, and Applications:** Presented a contributed talk on " $L^1$  stability estimate of hyperbolic semilinear systems with quadratic nonlinear source terms" at Caltech, Pasadena.
218. **October 2001, Applied math seminar:** Presented a one hour talk on " $L^1$  stability of hyperbolic conservation laws with a non-resonant source" at the Department of Mathematics, University of Wisconsin-Madison.
219. **July 2001, P.D.E. seminar:** Presented a one hour talk on "Nonlinear stability of planar traveling waves for the two-dimensional shallow river model" at the Department of Mathematics, Seoul National University.
220. **September 2000, P.D.E. seminar:** Presented a one hour talk on "Hyperbolic conservation laws" at the Department of Mathematics, Seoul National University.
221. **May 2000, P.D.E. seminar:** Presented a one hour talk on " $L^1$  stability of hyperbolic conservation laws with a source" at the Institute of Mathematics of academy of Sinica in Taiwan.
222. **April 2000, P.D.E. seminar:** Presented a one hour talk on " $L^1$  stability of hyperbolic conservation