

PUBLICATIONS

1. L^1 stability for systems of conservation laws with a non-resonant moving source, *SIAM. J. Math. Anal.*, 33(2001), 411-439.
2. Wave front tracing and asymptotic stability of planar traveling waves for a two-dimensional shallow river model, (with S.-H. Yu), *J. Differential equations.* 186/1 (2002), 230-258.
3. L^1 stability estimate for a one-dimensional Boltzmann equation with inelastic collisions. *Journal of differential equations.* 190/2 (2003), 621-642.
4. L^1 stability for systems of conservation laws with a resonant moving source, (with T. Yang), *SIAM. J. Math. Anal.* 34 (2003), 1226-1251.
5. L^1 stability for the one-dimensional Broadwell model of a discrete velocity gas, (with A.E. Tzavaras), *Proceeding of the ninth international conference on hyperbolic conference held in Caltech, Pasadena, March 25-29.* Springer-Verlag, 2003.
6. Global existence of plasma ion-sheaths and their dynamics, (with M. Slemrod), *Commun. Math. Phys.* 238 (1/2) (2003), 149-186.
7. Lyapunov functionals and L^1 stability of discrete Boltzmann equations, (with A.E. Tzavaras), *Commun. Math. Phys.* 239 (1/2) (2003), 65-92.
8. L^1 stability of multi-dimensional discrete Boltzmann equations, *Arch. Rational Mech. Anal.* 171 (1) (2004), 25-42.
9. Nonlinear functionals of multi-dimensional discrete Boltzmann equations, (with M. Feldman), *J. Stat. Phys.* 114 (3/4) (2004), 1015-1033.
10. L^1 stability of the Boltzmann equation for the hard sphere model, *Arch. Rational Mech. Anal.* 173 (2004), 279-296.
11. L^1 stability of the Boltzmann equation for Maxwellian molecules, *Nonlinearity* 18 (2005), 981-1001.
12. Exact self-similar solutions for the two-dimensional plasma-ion sheath system, (with M. Feldman and M. Slemrod), *J. Phys. A: Mathematical and General* 38 (2005), 7197-7204.
13. Nonlinear functionals of the Boltzmann equation and uniform stability estimates, *J. Differential Equations* 215 (2005), 178-205.
14. Lyapunov functionals for the Enskog-Boltzmann equation, *Indiana Univ. Math J* 54 (2005), 997-1014.
15. Remarks on the Wigner-Poisson system, (with M. Chae and H. Huh), *J. Math. Phys.* 46 (2005), 112103.
16. A geometric level-set formulation of plasma-sheath interface, (with M. Feldman and M. Slemrod), *Arch. Rational Mech. Anal.* 178 (2005), 81-123.
17. On the repulsive Vlasov-Poisson system near vacuum, (with M. Chae), *Trends in Mathematics* 8 (2005), 71-76.
18. On the explicit dynamics of a plasma-sheath interface, (with M. Feldman and M. Slemrod), *Trends in Mathematics* 8 (2005), 105-112.
19. New Lyapunov functionals of the Vlasov-Poisson system, (with M. Chae), *SIAM. J. Math. Anal.* 37 (2006), 1707-1731.
20. Stability estimates of the Boltzmann equation with quantum effects, (with M. Chae), *Continuum mechanics and Thermodynamics* 17 (2006), 511-524.

21. New a priori estimates of the Boltzmann-Enskog equation, (with S. Noh), *Nonlinearity* 19 (2006), 1219-1232.
22. Self-similar Isothermal Irrotational Motion for the Euler, Euler-Poisson Systems and the Formation of the Plasma Sheath, (with M. Feldman and M. Slemrod), *Journal of Hyperbolic Differential Equations* 3 (2006), 233-246.
23. Uniform L^1 -stability estimate of the Boltzmann equation near a local Maxwellian, (with S. Yun), *Physica D.* 220 (2006), 79-97.
24. Time-asymptotic behavior of the Vlasov-Poisson-Boltzmann system near vacuum, (with M. Chae, H.J. Hwang) *J. Differential Equations* 230 (2006), 71-85.
25. Some recent progress of collisional kinetic equations near vacuum, *Bull. Inst. Math. Acad. Sin. (N.S.)* 2 (2007), 221-234.
26. Stability of the Boltzmann equation on half space, (with M. Chae), *Quart. Appl. Math.* 65 (2007), 653-682.
27. L^p -stability theory of the Boltzmann equation near vacuum, (with M. Yamazaki and S.-B. Yun), *Proceeding of the 11th international conference on hyperbolic conference*, Springer-Verlag, 2007.
28. Multi-D Bony type potential for the Boltzmann-Enskog equation, (with S. Noh), *Proceeding of the 11th international conference on hyperbolic conference*, Springer-Verlag, 2007.
29. Remarks on the stability of the frictionless Vlasov-Poisson-Fokker-Planck system, (with S. Noh), *J. Math. Phys.* 48 (2007), no. 7, 073303, 13 pp.
30. Global existence and stability of mild solutions to the Boltzmann system for gas mixtures, (with S. Noh and S.-B. Yun), *Quart. Appl. Math.* 65 (2007), 757-779.
31. Global well-posedness of the relativistic Vlasov-Yukawa system with small data (with H. Lee), *J. Math. Phys.* 48 (2007), 123508.
32. Continuous dependence of mild solutions to the Fokker-Planck-Boltzmann equation, (with H. Lee and S. Noh), *Bull. Inst. Math. Acad. Sin. (N.S.)*. 2 (2007),
33. From particle to kinetic and hydrodynamic descriptions of flocking (with E. Tadmor), *Kinetic and Related Models* 1(3), 415-435 (2008). IF: , (Support: KOSEF-2006-000-10002-0).
34. Uniform L^p -stability estimate for the spatially inhomogeneous Boltzmann equation near vacuum, (with M. Yamazaki and S.-B. Yun), *J. Hyperbolic Differential Equations.* 5 (2008), 713-739. IF: 0.590, (Support: KRF-2006-312-C00042).
35. Existence, uniqueness and stability for spatially inhomogeneous Becker-Doring equations with diffusion and convection terms, (with P. Dubovski), *Annales de la Faculte des Sciences de Toulouse.* 17 (2008), 461-493.
36. Asymptotic completeness for relativistic kinetic equations with short-range interaction forces (with S.-Y. Ha, Y.D.Kim, H. Lee and S. Noh), *Methods and Applications of analysis.* 14 (2007), 251-262.
37. Uniform L^p -stability theory for the space-inhomogeneous Boltzmann equation with external forces, (with H. Lee and S.-B. Yun), *DCDS A* 24 (2009), 115-143. IF:1,205,(Support: KOSEF R01-2006-000-10002-0).
38. L^p -stability estimates for the space-inhomogeneous discrete velocity Boltzmann model (with M. Yamazaki), *DCDS B* 11 (2009), 353-364. IF: 0.803,(Support: KOSEF R01-2006-000-10002-0).

39. On the uniform L^2 -stability estimate of the relativistic Boltzmann equation (with H. Lee, X. Yang and S.B. Yun), *J. Hyperbolic Differential Equations*. Vol 6, 1-18 (2009). IF: 0.638, (Support: KRF-2006-312-C00042).
40. L^1 -stability estimates for the Vlasov-Poisson system in a half space, (with M. Chae and H. Hwang), *Communications in Mathematical Sciences*. Vol 7(march), 189-209 (2009). IF: 0.982, (Support: KRF-2007-C00054, SNU-CNS).
41. Global existence of classical solutions to the damped Vlasov-Klein-Gordon system with small data, (with Ho Lee), *J. Mathematical Physics*. Vol 50 (15th of May), 053302 (2009). IF: 1.318, (Support: KRF-2007-C00054).
42. Short proof of Cucker-Smale's flocking and the mean-field limit, (with Jian-Guo Liu), *Communications in Mathematical Sciences*. Vol 7 (June), 297-325 (2009). IF: 0.982,(Support:KRF-2007-C00054).
43. Existence of time-asymptotic flocking in a stochastic Cucker-Smale system (with Kiseop Lee and Doron Levy), *Communications in Mathematical Sciences*. Vol 7 (June), 453-469 (2009). IF: 0.982,(Support: KRF-2007-C00054).
44. Particle, kinetic and fluid models for phototaxis (with Doron Levy), *Discontinuous and Continuous Dynamical System B*. Vol 12 (July), 77-108 (2009). IF: 0.803,(Support: KOSEF R01-2006-000-10002-0)
45. On the formation of shocks to the compressible Euler equations (with Dongho Chae), *Comm. Math. Sciences*, Vol 7 (September), 627-634 (2009). IF: 0.982
46. L^2 -stability estimates of the Boltzmann equation near a global Maxwellian regime, (with X. Yang and S.-B. Yun), *Arch. Ration Mech and Anal*. Vol 197, 657-688 (2010). IF: 2.277,(KOSEF-R01-2006-000-10002-0).
47. Asymptotic flocking dynamics for the Cucker-Smale model with the Rayleigh friction, (with T. Ha and J. Kim). *J. Physics A: Math. Theor*. Vol 43, 315201 (2010). IF: 1.641, (Support: KRF-2008-C00060, SNU-CNS).
48. Flocking dynamics of a singularly perturbed oscillator chain and the Cucker-Smale system, (with Marshall Slemrod), *J. Dyn. Diff. Equat*. Vol 22, 325-330 (2010. June). IF: 1.375, (Support: KRF-2008-C00060, SNU-CNS).
49. Emergent behavior of a Cucker-Smale type particle model with nonlinear velocity couplings, (with T. Ha and J. Kim), *IEEE Trans. Automatic Control*. **55**, 1679-1683 (2010, July). IF: 1.952, (Support: KRF-2008-C00060, CNS-SNU).
50. On the complete synchronization of the Kuramoto phase model, (with T. Ha and J. Kim), *Physica D*, **239** 1692-1700 (2010, May), IF: 1.557. IF: , (Support: NRF-2009-0093137 (SRC), SNU-CNS).
51. A simple proof of the complete consensus of discrete-time dynamical networks with time-varying couplings (with Young-Pil Choi), *International Journal of Numerical Analysis and Modeling-B*, Vol 1, Number 1, 58-69 (2010, Sep.). IF: ,(Support: KRF-2008-C0060, SNU-CNS).
52. Cucker-Smale flocking with inter-particle bonding forces (with Jaemann Park, H. Jin Kim), *IEEE Trans. Automatic Control*. **55**, 2617-2623 (2010, Nov), IF: 1.952. IF: ,(Support: NRF-2009-0093137 (SRC), SNU-CNS).
53. Stochastic flocking dynamics of the Cucker-Smale model with multiplicative white noises (with Shin Mi Ahn), *J. Math. Phys*. **51**, 103301 (2010, Oct.) IF:1.291, (Support: NRF-2009-0093137 (SRC)).
54. Emergent behavior of a generalized Viscek model for flocking (with Eunhee Jeong and Moon-Jin Kang), *Nonlinearity*, **23**, 3139 (2010, Nov.) IF: 1.468. (Support: NRF-2009-0093137 (SRC), SNU-CNS).

55. Existence and stability of mild solutions to the inelastic Boltzmann system for gas mixtures, (with Se Eun Noh), Quarterly of Applied Mathematics. **68** 671-699 (2010, December 1st), IF: 0.697. (Support: KRF-2008-C00023, CNS-SNU)
56. Complete synchronization of Kuramoto oscillators with finite inertia (with Young-Pil Choi and Seok Bae Yun), Physica D, **240**, 32-44 (2011, Jan) IF: 1.594., (Support: NRF-2009-0093137 (SRC) and SNU-CNS).
57. Dispersion estimates for the two-dimensional Vlasov-Yukawa system with small data (with Seon-Ho Choi and Ho Lee), J. Differential Equations **250**, 515-550 (2011 Jan.) IF:1.277. (Support: NRF-2009-0093137 (SRC) and SNU-CNS).
58. Nonlinear instability of the one-dimensional Vlasov-Yukawa system (with Ho Lee, Taeyoung Ha and Chi-Ok Hwang). J. Math. Phys. **52**, 033301 (2011, March 1st) IF: 1.291. (Support: Grant No. 2009-0093137 (SRC))
59. Flocking and synchronization of particle models (with C. Lattanzio, B. Rubino and M. Slemrod), Quarterly of Applied Mathematics, **69** 91-103 (2011, March 1st), IF: 0.524. (Support: KRF-2008-C00060, CNS-SNU)
60. Asymptotic behavior of the nonlinear Vlasov equation with a self-consistent force (with Sun-Ho Choi). SIAM. J. Math. Anal. **43**, 2050-2077 (2011, Sep. 1st), IF: 1.316, (Support: KRF-2009-0093137 (SRC), SNU-CNS).
61. Global weak solutions and uniform L^p -stability of the Boltzmann-Enskog equation (with Se Eun Noh), J. Differential Equations. **251** Issue: 1, 1-25 (2011, July 1st), IF: 1.277, (Support: KRF 2008-C00060, SNU-CNS).
62. A fast-slow dynamical systems theory for the Kuramoto phase model (with Marshall Slemrod). J. Differential Equations, **251**, 2685-2695 (2011, April 22), IF: 1.277,(Support: NRF-2009-0093137 (SRC), SNU-CNS).
63. A simple proof on the dynamic instability of stationary solutions to nonlinear Vlasov equations (with Sun-Ho Choi). International Journal of Numerical Analysis and Modeling B. **2**, 415-421 (2011) IF: ,(Support: NRF-2009-0093137 (SRC) and SNU-CNS).
64. Asymptotic formation and orbital stability of phase-locked states for the Kuramoto model (with Young-Pil Choi, Sungeun Jung and Yongduck Kim). Physica D, **241**, 735-754 (2012, April) IF: 1.669, (Support: NRF-2011-0015388).
65. Fast-slow dynamics of planar particle models for flocking and swarming (with Sungeun Jung and Marshall Slemrod). J. Differential Equations, **252**, 2563-2579 (Feb. 1, 2012) IF: 1.480,(Support: NRF-2009-0093137 (SRC) and SNU-CNS).
66. On the collision avoiding initial-configurations to the Cucker-Smale type flocking models (with Shinmi Ahn, Heesun Choi and Ho Lee), Communications in Mathematical Sciences **10**, 625-643 (2012, June) IF: 1.589,(Support: KRF 2008-C00060 and SNU-CNS).
67. A class of interacting particle systems on the infinite cylinder with flocking phenomena (with Corrado Lattanzio, Moon-Jin Kang and Bruno Rubino). Mathematical Models and Methods in Applied Science, **22**, 125008 (2012). IF: 1.874,(Support: NRF-2009-0093137 (SRC) and SNU-CNS).
68. Emergence of clustering from attractive and repulsive interactions (with Eunhee Jeong, Jeong-han Kang and Kyung-Keun Kang). Mathematical Models and Methods in Applied Science **22**, 1250013 (2012). IF: 1.874,(Support: NRF-2009-0093137 (SRC) and SNU-CNS).
69. Time-asymptotic interaction of flocking particles and incompressible viscous fluid, (with H. Bae, Y.-P. Choi and M. Kang), Nonlinearity **24**, 1155 (2012). IF: 1.602,(Support: KRF-2009-0093137).

70. On the basin of attractors for the unidirectionally coupled Kuramoto model in a ring (with Moon-Jin Kang). *SIAM. Appl. Math.* **72**, 1549-1574 (2012) IF: 1.577,(Support: KRF-2011-0015388).
71. Exponential synchronization of Kuramoto oscillators at critical coupling strength(with Young-Pil Choi, Myeong-Min Kang and Myungjoo Kang). *Communications on Mathematical Sciences.* **11**, No.2, 385-401 (June, 2013), IF: 1.589 ,(Support: NRF-2011-00015388).
72. Uniform L^1 -stability of the relativistic Boltzmann equation near vacuum, (with E. Jeong and B. Strain), *Communications on pure and applied analysis.* **12**, 1141-1161 (March 2013), IF: 0.589, (Support: KRF-2011-00015388).
73. Application of flocking mechanism to the modeling of stochastic volatility (with Shinmi Ahn, Hyeon-gohk Bae, Yongsik Kim and Hyuncheul Lim). *Mathematical Models and Methods in Applied Science,* **23** (9), 1603-1628 (August, 2013), IF: 1.874,(Support: NRF-2011-0015388).
74. On the relaxation dynamics of the Kuramoto model with small inertia (Young-Pil Choi and Se Eun Noh). *J. Math. Phys.* **54**, 072701 (July, 2013).
75. Formation of phase-locked states in a population of locally interacting Kuramoto oscillators (with Zhuchun Li and Xiaoping Xue), *J. Differential Equations.* **255** (10), 3053-3070 (Nov. 15th, 2003) IF: , (Support: NRF-2011-0015388).
76. Global existence and asymptotic behaviors of measure valued solutions to the kinetic Kuramoto-Daido model with inertia (with Young-Pil Choi and Seok-Bae Yun), *Networks and Heterogeneous Media* **8**(4), 943-968 (2013, December). IF: , (Support: NRF-2011-0015388).
77. L^2 -stability of the Vlasov-Maxwell-Boltzmann system near global Maxwellians (with Qing-Hua Xiao, Lin-Jie Xiong, and Hui-Jiang Zhao). *Journal of Mathematical Physics* **54** (12), 121509 (2013, December) (Support: NRF-2011-0015388).
78. Fast and slow relaxations to bi-cluster configurations from the ensemble of Kuramoto oscillators (with Moonjin Kang). *Quarterly of Applied Mathematics* **71**, 707-728 (2013, December) IF: ,(Support: NRF-2011-0015388).
79. Complete synchronization of Kuramoto oscillators with hierarchical leadership (with Zhuchun Li). *Commun. Math. Sciences.* **12**(3), 485-508 (2014, September) IF: , (Support: NRF-2011-00015388)
80. Uniform stability and the propagation of regularity for the relativistic Boltzmann equation (with Qinghua Xiao). *SIAM. J. Math Anal.* **46** (1), 165-191 (2014, Jan.) IF: , (Support: NRF-2011-0015388).
81. Nonlinear stability of spherical self-similar flows to the compressible Euler equations (with Hsiu-Chuan Huang and Wen-Ching Lien). *Quartely of Applied Math.* **72** (1), 109-136 (2014, Jan.). IF. (Support: NRF-2009-0093137)
82. Large-time dynamics of Kuramoto oscillators under the effect of inertia and frustration (with Yongduck Kim and Zhuchun Li). *SIAM. J. Appl. Dyn.* **13** (1), 466-492 (2014, Jan) (Support: NRF 2011-0015388)
83. How do cultural classes emerge from assimilation and distinction? An extension of the Cucker-Smale flocking Model (with Jeonghan Kang, Kyung-Kuen Kang and Eunhee Jeong). *J. Mathematical Sociology.* **38**, 47-71 (2014). IF: , (Support: NRF 2009-0093137 (SRC), SNU-CNS).
84. Emergent phenomena in an ensemble of Cucker-Smale particles under joint rooted leadership. (with Z. Li and X. Xue). *Math. Models Methods Appl. Sci.* **24** (7), 1389-1419 (2014, July) IF: , (Support: NRF-2011-0015388).
85. Asymptotic synchronous behavior of Kuramoto type models with frustrations (with Yongduck Kim and Zhuchun Li). *Network and Heterogeneous Media* **9** (1), 33-64 (2014, Jan). (Support: NRF-2011-0015388).

86. Global existence of strong solution for the Cucker-Smale-Navier-Stokes system (with Hyeong-Ohk Bae, Young-Pil Choi and Moon-Jin Kang). *Journal of Differential Equations* **257** (6), 2225-2255 (2014, September) IF: , (Support: NRF-2011-0015388).
87. Contractivity of the Wasserstein metric for the kinetic Kuramoto equation (with J. Carrillo, Y.P. Choi, Y. Kim and M. Kang), *J.Stat.Phys.* **156** (2), 395-415 (2014, May) IF: , (Support: NRF-2011-0015388).
88. Complete entrainment of Kuramoto oscillators with inertia on networks via gradient-like flow (with Y.-P. Choi, Zhuchun Li, Xiaoping Xue, Seok-Bae Yun). *J. Differential Equations* **257** (7), 2591-2621 (2014, July), IF: , (Support: NRF-2011-0015388).
89. Asymptotic flocking dynamics of Cucker-Smale particles immersed in compressible fluids(with H.-O. Bae, Y.-P. Choi and M.-J. Kang). *Discrete and Continuous Dynamical System-A* **34** (11), 4419-4458 (2014) (Support: NRF-2001-0015388).
90. Emergent behavior of a holonomic particle system on a sphere (with Dongpyo Chi and Sun-Ho Choi). *J. Mathematical Phys.* **55** (5), 052703(2014, May) IF: , (Support: NRF-2009-0083521)
91. A global unique solvability of entropic weak solution to the one-dimensional pressureless Euler system with a flocking dissipation (with Feimin Huang and Yi Wang). *J. Differential Equations* **257** (5), 1333-1371 (2014, September), IF: , (Support: NRF-2009-0093137 (SRC)).
92. A hydrodynamic model for the interaction of Cucker-Smale particles and incompressible fluids (with Moon-Jin Kang, Bongsuk Kwon). *Mathematical Models and Methods in Applied Sciences* 24 (11), 2311-2359 (2014, October) IF: 2.351, (Support: NRF-2009-0083521).
93. Global existence of classical solutions to the inelastic Vlasov-Poisson-Boltzmann system (with Sun-Ho Choi). *J. Stat. Phys.* 156, 948-974 (2014), IF: , (Support: NRF-2009-0083521).
94. Quantum synchronization of the Schrodinger-Lohe Model (with Sun-Ho Choi). *J. Phys. A: Mathematical and Theoretical* 47, 355104 (16 pages) (2014), IF: , (Support: NRF-2009-0083521 (SRC)).
95. Complete entrainment of Lohe oscillators under attractive and repulsive couplings (with Sun-Ho Choi). IF: , Support: NRF-2009-0083521. *SIAM. J. Appl. Dyn.* **13** (2014, Sep.) 1417-1441.
96. Flocking behavior of the Cucker-Smale model under rooted leadership in a large coupling limit (with Zhuchun Li, Marshall Slemrod and Xiaoping Xue). *Quarterly of Applied Math.* **72** (2014), 689-701. IF: , (Support: NRF-2011-0015388).
97. On the upper bound of a Lyapunov exponent for the linearized Vicsek model for consensus (with Zhuchun Li, Xiaoping Xue). *Networks and Heterogeneous Media* **9**, 335-351 (June 2014). IF: , (Support: NRF-2011-0015388).
98. Lyapunov functional approach and collective dynamics of some interacting many-body systems. *Proceedings of ICM 2014*. IF: , (Support: NRF-2009-0083521 (SRC))
99. Nonlinear instability of the Vlasov-Poisson-Boltzmann system in three dimensions, (with S. Bae and Sun-Ho Choi). *Conference Proceedings of HYP 2012* IF: ,(Support: KRF-2009-0093137).
100. A mathematical model for multi-name Credit based on the community flocking (with K. Kim and K. Lee). *Quantitative Finance* **15** (2015), 841-851. IF: ,(Support: KRF-2008-C00023).
101. Remarks on the nonlinear stability of the Kuramoto model with inertia (with Young-Pil Choi and Se Eun Noh). *Q. Appl. Math.* **73**, 391-399 (June 2015) IF: , (Support: NRF-2011-0015388).
102. A mathematical model for the volatility flocking with a regime switching in a stock market (with H. O. Bae, Y. Kim, S.-H. Lee, H. Lim and Jane Yoo). IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03). *M3AS* **25**, 1299-1335 (June 2015).

103. Emergence of phase-locked states for the Winfree model in a large coupling regime (with J. Park and S. W. Ryoo) IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03). *Discrete and Continuous Dynamical Systems* **35**, 3417-3436 (August 2015).
104. Nonlinear instability of the incoherent state for the Kuramoto-Sakaguchi equation (with Qinghua Xiao), IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03). *J. Stat. Phys.* **160**, 477-496 (July 2015).
105. Remarks on the nonlinear stability of the Kuramoto-Sakaguchi equation (with Qinghua Xiao). *JDE.* **259**, 2430-2457 (September 2015). IF: , (Support: 2014R1A2A205002096).
106. On the asymptotic dynamics of the Vlasov-Yukawa-Boltzmann system near vacuum (with Sun-Ho Choi). *Acta Mathematica Scientia* **35**, 887-905 (July 2015). IF: , (Support: 2014R1A2A205002096).
107. A revisit to the L^2 -stability theory of the Boltzmann equation near global Maxwellians (with Qinghua Xiao). *J. Stat. Phys.* **160**, 430-465 (July 2015). IF: , (Support: 2014R1A2A205002096)
108. Remarks on the complete synchronization of Kuramoto oscillators (with Hwa Kil Kim and Jinyeong Park). IF: , Support: NRF-2009-0083521 (SRC). *Nonlinearity* **28**, 1441 - 1462 (2015).
109. Kuramoto oscillators with inertia: A fast-slow dynamical systems (with Y.-P. Choi, S. Jung and M. Slemrod). *Q. Appl. Math.* **73** (2015), 467-482. IF: , (Support: NRF-2011-0015388).
110. Large-time dynamics of the asymptotic Lohe model with a small time-delay (with Sun-Ho Choi), IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03). *J. Physics A* **48** (2015), 425101.
111. On the Cucker-Smale model with alternating leaders (with Zhuchun Li). *Q. Applied Math.* **73** (2015), 693-709. IF: , (Support: NRF-2011-0015388).
112. Emergent behavior of quantum Lohe oscillators with all-to-all coupling (with Sun-Ho Choi). *J. Non-linear Sciences* **25** (2015), 1257-1283. IF: , (Support: 2014R1A2A205002096)
113. Emergent dynamics for the hydrodynamic Cucker-Smale system in a moving domain (with M.-J. Kang and B. Kwon). IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03). *SIAM. Math. Anal.* **47** (2015), 3813-3831.
114. Practical synchronization of generalized Kuramoto systems with an intrinsic dynamics (with Se Eun Noh and Jinyeong Park). *Network and Heterogeneous Media* **10** (2015), 787-807. IF: , (Support: NRF-2014R1A2A205002096).
115. L^2 -stability of solutions to the Landau equation near global Maxwellians (with Qing-Hua Xiao). *J. Math. Phys.* **56** (2015), 081505-081521 IF: , (Support: NRF-2011-0015388)
116. Emergence of bi-cluster flocking for agent-based models with unit speed constraint (with J. Cho, S.-Y. Ha, F. Huang, C. Jin and D. Ko), IF: , (Support: NRF-NSFC Cooperative Program). *Analysis and Applications* **14** (2016), 1-35.
117. Uniqueness and well-ordering of emergent phase-locked states for the Kuramoto model with frustration and inertia (with Zhuchun Li). IF: (Support: NRF2014R1A2A205002096). *M3AS* **26** (2016), 357-382.
118. Emergent dynamics of Winfree oscillators on locally coupled networks (with S.-Y. Ha, D. Ko, J. Park and S. W. Ryoo), IF: , (Support: NRF-2011-0015388). *J. Differential Equations* **260** (2016, March), 4203 - 4326.
119. Emergence of bi-cluster flocking for the Cucker-Smale model (with J. Cho, S.-Y. Ha, F. Huang, C. Jin and D. Ko), IF: , (Support: NRF-NSFC Cooperative Program). *M3AS* **14** (2016, January), 39-73.
120. Synchronization of the Kuramoto oscillators with adaptive couplings (with S. Noh and J. Park). *SIAM. J. Applied Dynamical Systems* **15** (2016, January), 162-194. IF: , (Support: 2014R1A2A205002096).

121. On the emergence and orbital stability of phase-locked states for the Lohe model (with Sang Woo Ryoo). *J. Stat. Phys.* 163 (2016, April), 411-439. IF: , (Support: Samsung Science and Technology Foundation under Project Number SSTF-BA1401-03)
122. Finiteness of collisions and phase-locked states for the Kuramoto model (with H. Kim and S. W. Ryoo). *Journal of Stat. Phys.* 163 (2016, June), 13941424. IF: , (Support: Samsung Science and Technology Foundation under Project Number SSTF-BA1401-03).
123. Simulation of interaction of flocking particles and an incompressible fluid (with H.-O. Bae and Y. Kim). IF: , (Support: Samsung Science and Technology Foundation under Project Number SSTF-BA1401-03). *Computers and mathematics with applications* 71 (2016), 2020-2033.
124. Time-delayed interactions and synchronization of identical Lohe oscillators (with S.-H. Choi). *Quart. Appl. Math.* 74 (2016), 297-319 IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03).
125. Emergence of flocking for a multi-agent system moving with constant speed (with Sun-Ho Choi). *Commun Math. Sci.* 14 (2016), 953-972 IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03).
126. Emergence of phase-locked states for the Kuramoto model in a large coupling regime (with Hwa Kil Kim and Sang Woo Ryoo). *Commun. Math. Sci.* 14 (2016), 1073-1091, IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03).
127. Global existence of strong solutions to the Cucker-Smale-Stokes system (with H.-O. Bae, Y.-P. Choi and M.-J. Kang), *Journal of Mathematical Fluid Mechanics*, 18 (June 2016), 38-396. (Support: NRF-2009-0083521 (SRC))
128. Practical quantum synchronization for the Schrodinger-Lohe system (with J. Cho and S.-H. Choi). *J. Physics A* 49 (2016), 205203 (17 pages) (Support: Samsung Science and Technology Foundation SSTF-BA1401-03).
129. Emergent dynamics of the Cucker-Smale flocking model and its variants (with Y.-P. Choi and Z. Li). To appear in the book chapter.
130. Interplay of inertia and heterogeneous dynamics in an ensemble of Kuramoto oscillators (with S. Noh and J. Park). *Anal. Appl. (Singap.)* 15 (2017), no. 6, 837-861. IF: , (Support: 2014R1A2A205002096)
131. Collective synchronization of classical and quantum oscillators (with Dongnam Ko, Jinyeong Park and Xiongtao Zhang). Volume 3, Issue 2, 2016 EMS Surveys in Mathematical Sciences. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
132. Emergence of partial locking states from the ensemble of Winfree oscillators (with D. Ko, J. Park and S. W. Ryoo). *Quart. Appl. Math.* 75 (2017), 39-68 (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
133. On the global well-posedness of BV weak solutions for the Kuramoto-Sakaguchi equation (with D. Amadori and J. Park). *J. Differential Equations* 262 (2017) 978-1022. (Support: (2014R1A2A2A05002096))
134. Emergent dynamics of a thermodynamically consistent particle model (with T. Ruggeri). *Archive for Rational Mechanics and Analysis* March 223(2017), 1397-1425 (Support:NRF2014R1A2A205002096)
135. Emergent dynamics of infinitely many Cucker-Smale particles in a random environment (with Jiin Jeong, Se Eun Noh, Qinghua Xiao and Xiongtao Zhang). *J. Differential Equations.* 262 (2017), February 2017, 2554-2591. IF: (Support: NRF-2014R1A2A205002096).
136. Emergence of local synchronization in an ensemble of heterogeneous Kuramoto oscillators (with Jaeseung Lee and Zhuchun Li). *iNetwork and Heterogeneous Media*, 12 (March, 2017), 1 - 24, IF: (Support: NRF-2014R1A2A205002096).

137. Emergent dynamics in the interactions of Cucker-smale ensembles. (with D. Ko, X. Zhang and Y. Zhang). *KRM.* 10 (September 2017), 689 - 723. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
138. A quest toward a mathematical theory of the dynamics of swarms (with Nicola Bellomo). *Math. Models Methods Appl. Sci.* 27 (2017), no. 4, 745-770 (Support: NRF2014R1A2A205002096).
139. Critical coupling strength of the Cucker-Smale model for flocking (with Dongnam Ko and Yinlong Zhang). *Math. Models Methods Appl. Sci.* 27 (2017), no. 6, 1051-1087. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
140. Dynamical system approach to synchronization of the coupled Schrodinger-Lohe system (with H. Huh). *Quart. Appl. Math.* 75 (2017), no. 3, 555-579. (Support: 2014R1A2A205002096).
141. Emergent dynamics of a generalized Lohe model on some class of Lie groups (with D. Ko and S. W. Ryoo). *J. Stat. Phys.* 168 (2017), no. 1, 171-207. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
142. Wave-front tracking analysis for the Kuramoto-Sakaguchi equation (with D. Amadori and J. Park). *Springer INdAM Innovative Algorithms and Analysis* (2017) (Support: 2014R1A2A205002096).
143. Time-asymptotic interactions of two ensembles of Cucker-Smale flocking particles (with Dongnam Ko, Xiongtao Zhang and Yinglong Zhang). *J. Math. Phys.* 58 (2017), no. 7, 071509, 26 pp (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
144. Convergence analysis in L^∞ norm on the numerical gradient of shortly-Weller method (with J. Seo, C. Min). To appear in *J. Computational Sci.*
145. The Wigner-Lohe model for quantum synchronization and its emergent dynamics (with P. Antonell, D. Kim and P. Marcati). To appear in *Network and Heterogeneous Media.* (Support: National Research Foundation of Korea (NRF2014R1A2A205002096)).
146. Emergent dynamics of Kuramoto oscillators with adaptive couplings II (with J. Lee, Z. Li and J. Park). To appear in *SIAM. J. Applied Dynamical Systems* (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
147. Remarks on the complete synchronization for the Kuramoto model with interaction frustrations (with H. Kim, and J. Park). To appear in *Analysis and Applications.* (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
148. A global well-posedness of the kinetic Cucker-Smale flocking model with chemotatic movements (with C. C. Chen and X. Zhang). To appear in *CPAA.* (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
149. Emergence of phase-locking in the Kuramoto model for identical oscillators with frustration (with D. Ko and Y. Zhang). To appear in *SIAM. J. Applied Dynamical Systems.* (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
150. On the global solvability of the coupled kinetic-fluid system for flocking with large initial data (with B. Huang, Q. Xiao and X. Zhang). To appear in *M3AS* (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
151. Emergent dynamics of the Schrödinger-Lohe system on cooperative-competitive networks (with H. Huh and D. Kim). To appear in *JDE* (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
152. Emergent dynamics of Cucker-Smale particles under the effect of random communications and incompressible fluids (with Q. Xiao and X. Zhang). To appear in *JDE* (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).

153. Uniform-in-time transition from discrete dynamics to continuous dynamics in the Cucker-Smale flocking (with X. Zhang). To appear in M3AS (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
154. Emergent behaviors of termite traffic flow on planar closed curves (with Kyung-Eun Park, Jiin Jeong, Yuneung Kim, Johan Lim and Sung Won Kwon). Submitted to Physical Biology. IF. (Support: 2014R1A2A205002096).
155. Volatility-Flocking in the U.S. Stock Market (with H. O. Bae, Y. Kim, S.-H. Lee, H. Lim and Jane Yoo). Submitted to Financial Research Letters. IF: , (Support: Samsung Science and Technology Foundation SSTF-BA1401-03).
156. Emergence of phase configuration for the Kuramoto-Sakaguchi equation (with Y.-H. Kim, Javier Morales and J. Park.) Submitted to ARMA. (Support: 2014R1A2A205002096)
157. Uniform ℓ_p -stability of the Cucker-Smale model and its application to the mean-field limit (with J. Kim and X. Zhang). Submitted to KRM. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
158. On the global existence of weak solutions for the Cucker-Smale-Navier-Stokes system with shear thickening (with H. K. Kim, J.-M. Kim and J. Park). Submitted to SCIENCE CHINA Mathematics.. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
159. Emergent behavior of thermodynamic Cucker-Smale particles (with J. Kim and T. Ruggeri). Submitted to SIAM. J. Math. Anal. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
160. On the first-order reduction of the Cucker-Smale model and its clustering dynamics (with J. Park and X. Zhang). Submitted to Commun. Math. Sci. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
161. Uniform stability and mean-field limit for the augmented Kuramoto model (with J. Kim, J. Park and X. Zhang). Submitted to NHM. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
162. Uniform stability and mean-field limit of thermodynamic Cucker-Smale model (with J. Kim, C. H. Min, T. Ruggeri and X. Zhang). Submitted to Communications in Math. Sci. (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
163. Remarks on the Instability of the multi-dimensional Hamilton-Jacobi equation in total variation and L^1 -norm (with J. Kim, D. Ko and C. Min. Submitted to Applied Math Letters (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
164. Remarks on the critical coupling strength for the Cucker-Smale model with unit speed (with D. Ko and Y. Zhang). Submitted to DCDS-A (Support: Science and Technology Foundation under Project Number SSTF-BA1401-03).
165. Effect of time delay in the stochastic volatility model with regime switching (with H.-O. Bae, Y. Kim, S.-H. Lee, H. Lim and J. Yoo). Submitted to Mathematical Methods in Applied Sciences.
166. Remarks on the Stability Properties of the Kuramoto-Sakaguchi-Fokker-Planck Equation with Frustration (with D. Kim, J. Lee, Y. Zhang). Submitted to Zeitschrift fur angewandte Mathematik und Physik. (Support: NRF grant (2017R1A2B2001864)).
167. Interplay between the unit-speed constraint and time-delay in the Cucker-Smale flocking (with S.-H. Choi). Submitted to JMP (Support: Samsung Science and Technology Foundation under Project Number SSTF-BA1401-03).

168. Emergent dynamics of the Kuramoto ensemble under the effect of inertia (with Y.-P. Choi and J. Morales). Submitted to DCDS-A (Support: NRF grant (NRF-2017R1A2B2001864)).
169. Complete cluster predictability of the Cucker-Smale flocking model on the real line (with J. Kim, J. Park and X. Zhang). Submitted to J. EMS. (Support: Samsung Science and Technology Foundation under Project Number SSTF-BA1401-03).
170. On the relaxation dynamics of Lohe oscillators on some Riemannian manifolds (with D. Ko and S. W. Ryoo). Submitted to CMP (Support: Samsung Science and Technology Foundation under Project Number SSTF-BA1401-03).
171. Remarks on the slow relaxation for the fractional Kuramoto model for synchronization (with Jinwook Jung). Submitted to JMP. (Support: NRF-2017R1A2B2001864).
172. Propagation of regularity and finite-time collisions for the thermomechanical Cucker-Smale particles with singular communications (with Y.-P. Choi and J. Kim). Submitted to NHM (Support: NRF-2017R1A2B2001864)
173. Robustness of the complete oscillator death state for the Winfree model with a time-delay (with Dohun Kim). Preprint. (Support: NRF-2017R1A2B2001864).
174. A probabilistic approach for the mean-field limit to the Cucker-Smale model with a singular communication (with J. Kim, P. Pickl and X. Zhang). Preprint. (Support: NRF-2017R1A2B2001864).
175. A global existence of classical solutions to the hydrodynamic thermomechanical Cucker-Smale model (with J. Kim, C-H. Min, T. Ruggeri and X. Zhang). Preprint (Support: NRF-2017R1A2B2001864).
176. On the critical exponent of the one-dimensional Cucker-Smale model on a general graph (with Z. Li and X. Zhang). Preprint.
177. Emergent dynamics of a discrete-time thermodynamic Cucker-Smale model for flocking (with D. Kim and Z. Li). Preprint. (Support: NRF-2017R1A2B2001864).
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