Curriculum Vitae

Department of Mathematics and
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Hanyang University,
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Name: Jinyeong Park
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Appointments

- Assistant Professor, Department of Mathematics, College of Natural Sciences, Hanyang University, Seoul, Korea, March 2018 - Present.

- Department Chair, March 2023 - Present.

Degrees & Academic Experiences

- B.S. Mathematics, Seoul National University, August 2010.
- M.S. Mathematics, Seoul National University, August 2013.
  - Thesis Title: Asymptotic alignment of particle model with attractive-repulsive coupling.
  - Thesis Advisor : Prof. Seung-Yeal Ha.
- Ph.D. Mathematics, Seoul National University, August 2016.
  - Thesis Title: On the asymptotic dynamics of particle and kinetic Kuramoto synchronization models
  - Thesis Advisor : Prof. Seung-Yeal Ha.
- Postdoctoral Researcher (Mentor: Prof. Juan Soler), Departamento de Matemática Aplicada, Facultad de Ciencias, Universidad de Granada, Spain, November 2016 - January 2018.

Publications

MathSciNet Google Scholar

- Remarks on the complete synchronization of the Kuramoto oscillators (with S.-Y. Ha and H. K. Kim). Nonlinearity, 28 (2015), no. 5, 1441-1462.
- Emergence of phase-locked states for the Winfree model in a large coupling regime (with S.-Y. Ha and S. W. Ryoo). Discrete and Continuous Dynamical Systems - Series A, 35 (2015), no. 8, 3417-3436.
- Practical synchronization of generalized Kuramoto systems with an intrinsic dynamics (with S.-Y. Ha and S. E. Noh). Networks and Heterogeneous Media, 10 (2015), no. 4, 787 - 807.
- Emergent dynamics of Winfree oscillators on locally coupled networks (with S.-Y. Ha, D. Ko, and S. W. Ryoo). Journal of Differential Equations, 260 (2016), no. 5, 4203 - 4236.
- Synchronization of the Kuramoto oscillators with adaptive couplings (with S.-Y. Ha and S. E. Noh). SIAM Journal on Applied Dynamical Systems, 15 (2016), no. 1, 162-194.
- Collective synchronization of classical and quantum oscillators (with S.-Y. Ha, D. Ko, and X. Zhang) EMS Surveys in Mathematical Sciences, 3 (2016), no. 2, 209 - 267
- Emergence of partial locking states from the ensemble of Winfree oscillators (with S.-Y. Ha, D. Ko, and S. W. Ryoo). Quarterly of Applied Mathematics, 75 (2017), 39 - 68.
- On the global well-posedness of BV weak solutions to the Kuramoto-Sakaguchi equation (with D. Amadori and S.-Y. Ha). Journal of Differential Equations, 262 (2017), no. 2, 978 - 1022.
- Interplay of inertia and heterogeneous dynamics in an ensemble of Kuramoto oscillators (with S.-Y. Ha and S. E. Noh). Analysis and Applications, 15 (2017), no. 6, 837 - 861.
- A nonlocal version of Wavefront tracking motivated by Kuramoto-Sakaguchi equation (with D. Amadori and S.-Y. Ha). Springer INdAM Inovative Algorithms and Analysis.
- Emergent dynamics of Kuramoto oscillators with adaptive couplings: conservation law and fast learning (with S.-Y. Ha, J. Lee, and Z. Li). SIAM Journal on Applied Dynamical Systems, 17 (2018), no. 2, 1560 - 1588.
- Uniform stability and mean-field limit for the augmented Kuramoto model (with S.-Y. Ha, J. Kim, and X. Zhang). Networks and Heterogeneous Media, 13 (2018), no. 2, 297 - 322.

- Remarks on the complete synchronization for the Kuramoto model with interaction frustrations (with S.-Y. Ha and H. K. Kim). Analysis and Applications, 15 (2018), no. 4, 525 - 563
- Emergent Dynamics for the Kinetic Kuramoto Equation (with D. Amadori). Theory, Numerics and Applications of Hyperbolic Problems I, Springer Proceedings in Mathematics & Statistics (2018)
- On the global existence of weak solutions for the Cucker-Smale-Navier-Stokes system with shear thickening (with S.-Y. Ha, H. K. Kim, and J.-M. Kim). SCIENCE CHINA Mathematics, 61 (2018) no. 11, 2033 - 2052.
- A first-order reduction of the Cucker-Smale model and its clustering dynamics (with S.-Y. Ha and X. Zhang). Communications in Mathematical Sciences, 16 (2018) no. 7, 1907 - 1931.
- Complete cluster predictability of the Cucker-Smale flocking model on the line (with S.-Y. Ha, J. Kim and X. Zhang). Archive for Rational Mechanics and Analysis, 231 (2019) no. 1, 319-365.
- Emergent behaviors of the swarmalator model for position-phase aggregation (with S.-Y. Ha, J. Jung, J. Kim and X, Zhang). Mathematical Models and Methods in Applied Sciences, 29 (2019) no. 12, 2225 - 2269.
- Emergence of phase concentration for the Kuramoto-Sakaguchi equation (with S.-Y. Ha, Y. H. Kim, and J. Morales). Physica D, 401 (2020) 132154. Preprint arXiv:1610.01703
- A global well-posedness and asymptotic dynamics of the kinetic Winfree equation (with S.-Y. Ha, and X. Zhang). Discrete and Continuous Dynamical Systems Series B, 25(4) (2020) 1317 - 1344.
- Fast and slow velocity alignments in a Cucker-Smale ensemble with adaptive couplings (with S.-Y. Ha and D. Kim) Communications on Pure and Applied Analysis, 19(9) (2020) 4621-4654.
- A mean-field limit of the swarmalator model (with S.-Y. Ha, J. Jung, J. Kim and X, Zhang). Kinetic & Related Models, 14(3) (2021) 429-468.
- Filippov trajectories and clustering in the Kuramoto model with singular couplings (with D. Poyato and J. Soler). Journal of the European Mathematical Society, 23(10) (2021) 3193–3278. Preprint arXiv:1809.04307.
- Local well-posedness of the Vlasoc-Chern-Simons equation (with J. Kim and B. Moon) submitted.
- Fast and slow clustering dynamics of Cucker-Smale ensemble with internal oscillatory phases (with S.-Y. Ha and J. Kim) Mathematical Models and Methods in Applied Sciences, 33(5) 1053-1097 (2023).

Talks

- Dec. 6, 2013, PARC Annual Research Performance Report, Seoul National University, Korea : *"Practical synchronization of Kuramoto system with an intrinsic dynamics"*
- Jan. 23, 2014, East Asian Core Doctorial Forum on Mathematics, Kyoto University, Japan : *"Practical synchronization of Kuramoto system with an intrinsic dynamics"*
- Oct. 28, 2014, Young Researchers Workshop: Multiscale phenomena: modeling, analysis and computation, CSCAMM, University of Maryland, USA: *"Practical synchronization of Kuramoto system with an intrinsic dynamics"*
- Jan. 27, 2015, Department of Information Engineering, Computer Science and Mathematics, University of L'Aquila, Italy : *"Practical synchronization of Kuramoto system with an intrinsic dynamics"*
- Feb. 25. 2015, PARC Monthly Colloquium, Seoul National University, Korea: *"Emergence of phase-locked states for the Winfree model in a large coupling regime"*
- Oct. 22. 2015, Séminaire Analyse à Lyon, École Normale Supérieure de Lyon, France: *"Emergent dynamics of Winfree oscillators on locally coupled networks"*
- Dec. 11. 2015, Departamento de Matemática Aplicada, Universidad de Granada, Spain: *"Emergent dynamics of Winfree oscillators on locally coupled networks"*
- Jan. 08. 2016, PARC Annual Research Performance Report, Seoul National University, Korea: *"Emergent dynamics of Winfree oscillators on locally coupled networks"*
- Apr. 27. 2016, Department of Mathematics and Computer Science, University of Ferrara, Italy: *"Synchronization of Kuramoto oscillators with adaptive couplings"*
- May. 21. 2016, KSIAM 2016 Spring Conference, National Institute for Mathematical Sciences, Korea: *"Synchronization of Kuramoto oscillators with adaptive couplings"*
- Aug. 4. 2016, XVI International Conference on Hyperbolic Problems: Theory, Numerics, Applications, RWTH Aachen University, Germany: *"Emergence of synchronization for the Kuramoto-Sakaguchi equation"*
- Dec. 1. 2016, Departamento de Matemática Aplicada, Universidad de Granada, Spain: *"Emergence of synchronization in the Kuramoto model"*
- Dec. 12. 2016, CMC Winter School on Applied Math and Math. Physics, KIAS and Seoul National University, Korea: *"Emergence of synchronization for the Kuramoto-Sakaguchi equation"*
- Dec. 28. 2016, Department of Mathematics, Sungkyunkwan University, Korea: *"Emergence of synchronization for the Kuramoto-Sakaguchi equation"*

- Jun. 26. 2017, XXV Conference on Differential Equations and Applications / XV Conference on Applied Mathematics, Technical University of Cartagena(UPCT), Spain: *"Uniform stability and mean-field limit for the augmented Kuramoto model"*
- Aug. 16. 2017, Department of Mathematics, Sungkyunkwan University, Korea: *"Multi-cluster flocking of the Cucker-Smale model in one spatial dimension"*
- Aug. 17. 2017, Department of Mathematics, Inha University, Korea: *"Uniform stability and mean-field limit for the augmented Kuramoto model"*
- Aug. 22. 2017, CMC Conference: Nonlinear dynamics of many-body systems and related topics, KIAS and Seoul National University, Korea: *"Hebbian learning in the Kuramoto model with regular and singular weighted couplings"*
- Nov. 16. 2017, Department of Information Engineering, Computer Science and Mathematics, University of L'Aquila, Italy: *"Complete cluster predictability of the Cucker-Smale flocking model on the real line"*
- Dec. 28. 2017, One day workshop on Mathematical Modelling of Swarming, Department of Mathemaitcs, Inha University, Korea: *"Hebbian learning in the Kuramoto model with regular and singular weighted couplings"*
- Jun. 21. 2018, Korea PDE Workshop 2018, National Institute for Mathematical Sciences, Korea: *"Complete cluster predictability of the Cucker-Smale flocking model on the real line"*
- Jun. 28. 2018, XVII International Conference on Hyperbolic Problems: Theory, Numerics, Applications, Penn State University, USA: *"Hebbian learning and clustering in Kuramoto models with singular weighted couplings"*
- Aug. 6. 2018, International workshop on "Modeling and analysis of multi-agent systems", Harbin Institute of Technology, China: *"Hebbian learning and clustering in Kuramoto models with singular weighted couplings"*
- Aug. 29. 2018, Department of Information Engineering, Computer Science and Mathematics, University of L'Aquila, Italy: *"Hebbian learning and clustering in Kuramoto models with singular weighted couplings"*
- Feb. 15. 2019, Macroscopic Modeling of Vehicular and Pedestrian Traffic, University of Modena & Reggio Emilia, Italy: *"Emergent behaviors of the swarmalator model for position-phase aggregation"*
- Apr. 3. 2019, Seminar for undergraudate students, Kyung Hee University, Korea: *"Mathematical Modeling"*
- Sep. 8, 2019, Workshop on Complex Dynamics of Swarm Intelligence (Modeling, Analysis and Applications), Department of Mathematical Sciences, Seoul National University, Korea : *"Emergent behaviors of the swarmalator model for position-phase aggregation"*
- Oct. 26, 2019, 2019 KMS Annual Meeting, Hongik University, Korea : *"Emergent behaviors of the swarmalator model for position-phase aggregation"*

- Feb. 16. 2023, Kinetic Equations in Korea, Gangneung, Korea : *"Emergent dynamics of the swarmalator model and its mean-field limit"*

Organize

- Seminar on particle and kinetic models descri, bing collective behaviors, Hanyang University, Korea, June 18, 2018.
- Special session "Nonlocal Differential Equation: Analysis and Numerics", 2019 KMS Spring meeting, Kangwon National University, Korea, April 20, 2019.
- HY-PDE workshop on hyperbolic and kinetic problems, Hanyang University, Korea, May 3, 2019.
- The 4th Meeting of Young Researchers in PDEs, Hanyang University, Korea, October 11-12, 2019.
- Special session "Organized Behaviors Arising from Non-organized Dynamic Rules: Particle, Kinetic and Fluid", 2020 KMS Spring meeting, Online conference, July 3, 2020.
- HY-PDE workshop, Online conference, May 26th - 28th, 2021.
- HY-PDE workshop, Hanyang University, Korea, July 18th - 20th, 2022.
- HYKE meeting 2022, Hanyang University, Korea, August 29th, 2022.

Research Grant

- Foster Core Leaders of the Future Basic Science Program, National Research Foundation of Korea, 2014. 3 – 2016. 8
- Settlement support grant, Hanyang University, 2018, 3 – 2019, 8
- First Research in Lifetime, National Research Foundation of Korea, 2018. 3 – 2021. 2
- Basic Research Laboratory, National Research Foundation of Korea, 2020. 7 – 2023. 2
- Basic Research Grant, National Research Foundation of Korea, 2023. 6 – 2026. 2

Last updated: December 12, 2023