JI-HOON KIM

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Institute for Data Innovation in Science   mornkr@snu.ac.kr

Seoul National University, Seoul 08826, Republic of Korea

EDUCATION:

09/2005 - 06/2011	Ph. D., Department of Physics, Stanford University
03/1998 - 02/2002	B. Sc., School of Physics, *summa cum laude*, Seoul National University (SNU)

PROFESSIONAL APPOINTMENTS:

03/2022 -	**Associate Professor,** Seoul National University, Republic of Korea
03/2018 - 02/2022	Assistant Professor, Seoul National University, Republic of Korea
07/2016 - 11/2017	**Research Associate,** Stanford University/KIPAC
07/2015 - 06/2017	**Einstein Fellow,** Stanford University/SLAC National Accelerator Laboratory
07/2014 - 06/2015	Einstein Fellow, California Institute of Technology
01/2014 - 06/2014	**Moore Fellow,** California Institute of Technology
11/2013 - 12/2013	Visiting Scholar, Stanford University/KIPAC
09/2011 - 10/2013	**IMPS Postdoctoral Fellow,** University of California at Santa Cruz
09/2005 - 08/2011	Research Assistant, Stanford University

AWARDS AND FELLOWSHIPS (SELECTED):

03/2022	College of Natural Sciences Research Award, Seoul National University
03/2021	College of Natural Sciences Education Award, Seoul National University
01/2020 - 12/2022	POSCO Science Fellowship, POSCO TJ Park Foundation
09/2019	College of Natural Sciences Best Lecture Award, Seoul National University
12/2018 - 11/2023	Samsung Science & Technology Foundation Investigator
07/2014 - 06/2017	Einstein Postdoctoral Fellowship, NASA
01/2014 - 06/2014	Moore Postdoctoral Fellowship, California Institute of Technology
09/2005 - 03/2009	William R. and Sara Hart Kimball Graduate Fellowship, Stanford University
02/2002	Honor at Graduation, Seoul National University Alumni Association
03/2000 - 02/2002	Korea Foundation for Advanced Studies Fellowship

RESEARCH EXPERIENCES:

2022 -   **Associate Professor**, Dept. of Physics and Astronomy, Seoul National University

- *AGORA Project Coordinator, Leading an inter-institutional collaboration for high-resolution simulations comparison since 2012* (160+ participants from 60+ institutions), having led or co-led 6+ papers, helped organize 13 workshops with 30+ attendees, and 70+ online conferences

- *Director, Center for Data-driven Research for Materials and Universe, Institute for Data Innovation in Science at SNU* (03/2024-02/2026)

- ***PI, Samsung Science & Technology Foundation*** *"Towards the Multi-scale Understanding of the Growth of Supermassive Black Holes" (12/2018-11/2023)*
- ***PI, KISTI KSC*** *"Multi-scale Numerical Experiment on Growth of SMBHs In Nuclear SCs" (4,352,000 SUs on Nurion@KSC, Neuron@KSC, 20,000.0 GB on Nurion@KSC, 01/2023-12/2023)*
- ***PI, KISTI KSC*** *"Multi-scale Numerical Experiment on Growth of SMBHs Enhanced by TDEs" (6,528,000 SUs on Nurion@KSC, 20,000.0 GB on Nurion@KSC, 01/2022-12/2022)*
- *Studying the co-evolution of massive black holes, nuclear star clusters, and their host galaxies*

2018 - 2022   **Assistant Professor**, Dept. of Physics and Astronomy, Seoul National University

- ***PI, Creative-Pioneering Researchers Program at SNU*** *"Towards the Multi-scale Understanding of the Growth of Supermassive Black Holes" (09/2018-08/2019)*
- ***PI, KISTI KSC*** *"Multi-scale Numerical Experiment on Growth of SMBHs and Their Environment" (7,834,000 SUs on Nurion@KSC, 20,000.0 GB on Nurion@KSC, 01/2021-12/2021)*
- ***PI, KISTI KSC*** *"Multi-scale Numerical Experiment of Co-evolution of SMBHs and Their Hosts" (6,528,000 SUs on Nurion@KSC, 15,000.0 GB on Nurion@KSC, 01/2020-12/2020)*
- ***PI, KISTI KSC*** *"Towards the Multi-scale Numerical Understanding of SMBHs at Galaxy Centers" (4,787,000 SUs on Nurion@KSC, 15,000.0 GB on Nurion@KSC, 12/2018-11/2019)*
- ***PI, KISTI KSC*** *"Towards the Understanding of Growth & Evolution of SMBHs at Galaxy Centers" (400,000 SUs on Tachyon-II@KSC, 2,000.0 GB on Tachyon-II@KSC, 07/2018-10/2018)*
- ***Co-I, NASA HEC*** *"FIRE: DM and Galaxy Formation with Unprecedented Physics and Resolution" (3,166,000 SUs on Pleiades@NAS, 100,000.0 GB on Pleiades@NAS, 11/2016-09/2019)*
- *Simulating high-redshift quasar hosts with massive black holes and star-forming molecular clouds*

2015 - 2017   **Research Associate / Postdoctoral Researcher**, Stanford University/SLAC (Mentor: T. Abel)

- ***PI, NSF XSEDE*** *"Resolving the Impact of Supermassive Black Hole & Stellar Physics on Galaxies" (3,234,000 SUs on Stampede@TACC, 50,000.0 GB on Ranch@TACC, 10/2015-09/2016)*
- ***Co-I, NSF XSEDE*** *"Simulating the Local Group" (3,649,000 SUs on Stampede@TACC, 50,000.0 GB on Ranch@TACC, 10/2016-09/2017)*
- *Modeling the accretion and feedback of massive black hole seeds in the high-redshift universe*

2014 - 2015   **Postdoctoral Researcher**, California Institute of Technology (Mentor: P. Hopkins)

- ***PI, NSF XSEDE*** *"Resolving the Impact of Supermassive Black Holes on Galaxies" (1,200,000 SUs on Stampede@TACC, 20,000.0 GB on Ranch@TACC, 10/2014-09/2015)*
- *Simulating and analyzing the formation of star clusters in high-redshift proto-galaxies*

2013   Visiting Scholar, KIPAC/Stanford University

2011 - 2013   **Postdoctoral Researcher**, UC Santa Cruz (Mentors: M. Krumholz & J. Primack)

- ***Co-I, NSF XSEDE*** *"Star Formation in Galaxies: From Recipes to Real Physics" (on Stampede/Ranger@TACC, Pleiades@NASA, Kraken@NICS)*
- *Modeling radiative feedback of star-forming molecular clouds in galaxy formation*

2006 - 2011   **Research Assistant**, KIPAC/SLAC/Stanford University (Advisor: T. Abel)

- *Modeling the accretion and feedback of massive black holes, formation and feedback of stars*

2006   Research Assistant, KIPAC/Stanford University (Advisor: S. Church)

       ● *Building data pipelines for the QUAD Collaboration*

2005   Research Assistant, KIPAC/Stanford University (Advisor: E. Bloom)

       ● *Studying the cross-correlation between GRBs and SNe Ic events for the Fermi/GLAST Collaboration*

PEER-REVIEWED PUBLICATIONS [* = corresponding author] :

● **31)** Lee, J. -Y., **Kim, J. -H.***, Jung, M., & 6 other co-authors, "Inferring Cosmological Parameters on SDSS via Domain-Generalized Neural Networks and Lightcone Simulations ", *ApJ submitted (2024)*

● **30)** Jo, Y., Kim, S., **Kim, J. -H.**, & Bryan, G. L., "Evolution of Star Cluster Within Galaxy Using Self-consistent Hybrid Hydro/N-body Simulation", *ApJ submitted (2023)*

● **29)** Lee, J., Shin, E. -J., **Kim, J. -H.**, Shapiro, P. R., & Chung, E., "Multiple Beads-on-a-string: Dark Matter-Deficient Galaxy Formation In A Mini-bullet Satellite-satellite Galaxy Collision", *astro-ph:2312.11350, ApJ 966 (2024) 72*

● **28)** Jung, M., **Kim, J. -H.***, Oh, B. K., Hong, S. E., Lee, J., & Kim, J., "Merger-tree-based Galaxy Matching: A Comparative Study Across Different Resolutions", *astro-ph:2312.02466, ApJ 965 (2024) 156*

● **27)** Strawn, C., Roca-Fabrega, S., Primack, J. R., **Kim, J. -H.***, & 24 other co-authors for the *AGORA* Collaboration, "The *AGORA* High-resolution Galaxy Simulations Comparison Project. VI: Similarities and Differences in the Circumgalactic Medium", *astro-ph:2402.05246, ApJ 962 (2024) 29*

● **26)** Jung, M., Roca-Fabrega, S., **Kim, J. -H.***, & 18 other co-authors for the *AGORA* Collaboration, "The *AGORA* High-resolution Galaxy Simulations Comparison Project. V: Satellite Galaxy Populations In A Cosmological Zoom-in Simulation of A Milky Way-mass Halo", *astro-ph:2402.05392, ApJ 964 (2024) 123*

● **25)** Roca-Fabrega, S., **Kim, J. -H.***, Primack, J. R., Jung, M., & 23 other co-authors for the *AGORA* Collaboration, "The *AGORA* High-resolution Galaxy Simulations Comparison Project. IV: Halo and Galaxy Mass Assembly in a Cosmological Zoom-in Simulation at $z \leq 2$", *astro-ph:2402.06202, ApJ 968 (2024) 125*

● **24)** Jo, Y. et al. including **Kim, J. -H.**, "Calibrating Cosmological Simulations with Implicit Likelihood Inference Using Galaxy Growth Observables", *astro-ph:2211.16461, ApJ 944 (2023) 67*

● **23)** Lee, S., **Kim, J. -H.***, & Oh, B. K., "Growth of A Massive Black Hole In A Dense Star Cluster Via Tidal Disruption Accretion", *astro-ph:2211.02376, ApJ 943 (2023) 77*

● **22)** Shin, E. -J., Tacchella, S., **Kim, J. -H.**, Iyer, K. G., & Semenov, V. A., "Star Formation Variability As A Probe For the Baryon Cycle Within Galaxies", *astro-ph:2211.01922, ApJ 947 (2023) 61*

● **21)** Oh, B. K., An, H., Shin, E. -J., **Kim, J. -H.***, & Hong, S. E., "Machine-guided Exploration and Calibration of Astrophysical Simulations", *astro-ph:2203.06914, MNRAS 515 (2022) 693*

● **20)** Lee, J., Shin, E. -J., & **Kim, J. -H.***, "Dark Matter Deficient Galaxies And Their Member Star Clusters Form Simultaneously During High-velocity Galaxy Collisions in 1.25 pc Resolution Simulations", *astro-ph:2108.01102, ApJ Letters 917 (2021) L15*

● **19)** Roca-Fabrega, S., **Kim, J. -H.***, Hausammann, L., Nagamine, K., & 19 other co-authors for the *AGORA* Collaboration, "The *AGORA* High-resolution Galaxy Simulations Comparison Project. III: Cosmological Zoom-in Simulation of A Milky Way-mass Halo", *astro-ph:2106.09738, ApJ 917 (2021) 64*

● **18)** Shin, E. -J., **Kim, J. -H.***, & Oh, B. K., "How Metals Are Transported In And Out Of A Galactic Disk: Dependence On The Hydrodynamic Schemes In Numerical Simulations", *astro-ph:2106.04640, ApJ 917 (2021) 12*

● **17)** Shin, E. -J., Jung, M., Kwon, G., **Kim, J. -H.***, Lee, J., Jo, Y., & Oh, B. K., "Dark Matter Deficient Galaxies Produced Via High-velocity Galaxy Collisions in High-resolution Numerical Simulations", *astro-ph:2007.09889, ApJ 899 (2020) 25*

● **16)** Ma, X. et al. including **Kim, J. -H.,** "Self-consistent Proto-Globular Cluster Formation in Cosmological Simulations of High-redshift Galaxies", *astro-ph:1906.11261, MNRAS 493 (2020) 4315*

● **15)** **Kim, J. -H.***, Wise, J. H., Abel, T., Jo, Y., Primack, J. R., & Hopkins, P. F., "High-redshift Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes: Stellar Feedback and Quasar Growth", *astro-ph:1910.12888, ApJ 887 (2019) 120*

● **14)** Jo, Y., & **Kim, J. -H.***, "Machine-assisted Semi-Simulation Model (MSSM): Estimating Galactic Baryonic Properties from Their Dark Matter Using A Machine Trained on Hydrodynamic Simulations", *astro-ph:1908.09844, MNRAS 489 (2019) 3565*

● **13)** Bryan, G. L. et al. including **Kim, J. -H.** for the *ENZO* Collaboration, "*Enzo*: An Adaptive Mesh Refinement Code for Astrophysics (Version 2.6)", *JOSS 4(42) (2019) 1636*

● **12)** **Kim, J. -H.***, Ma, X., Grudic, M. Y., Hopkins, P. F., Hayward, C. C., & 5 other co-authors for the *FIRE* Collaboration, "Formation of Globular Cluster Candidates in Merging Proto-galaxies at High Redshift: A View from the *FIRE* Cosmological Simulations", *astro-ph:1704.02988, MNRAS 474 (2018) 4232*

● **11)** Hopkins, P. F. et al. including **Kim, J. -H.,** "The *FIRE*-2 Simulations: Physics Versus Numerics in Galaxy Formation", *astro-ph:1702.06148, MNRAS 480 (2018) 800*

● **10)** Butsky, I., Zrake, J., **Kim, J. -H.,** Yang, H. -I., & Abel, T., "Ab Initio Simulations of A Supernova Driven Galactic Dynamo in An Isolated Galaxy", *astro-ph:1610.08528, ApJ 843 (2017) 113*

● **9)** **Kim, J. -H.***, Agertz, O., Teyssier, R., Butler, M. J., Ceverino, D., & 38 other co-authors for the *AGORA* Collaboration, "The *AGORA* High-resolution Galaxy Simulations Comparison Project. II: Isolated Disk Test", *astro-ph:1610.03066, ApJ 833 (2016) 202*

● **8)** Wetzel, A., Hopkins, P. F., **Kim, J. -H.,** Faucher-Giguere, C-A., Keres, D., & Quataert, E., "Reconciling Dwarf Galaxies with LCDM Cosmology: Simulating A Realistic Population of Satellites Around A Milky Way-Mass Galaxies", *astro-ph:1602.05957, ApJ Letters 827 (2016) L23*

● **7)** **Kim, J. -H.***, Abel, T., Agertz, O., Bryan, G. L., Ceverino, D., & 41 other co-authors for the *AGORA* Collaboration, "The *AGORA* High-resolution Galaxy Simulations Comparison Project", *astro-ph:1308.2669, ApJS 210 (2014) 14*

● **6)** Bryan, G. L. et al. including **Kim, J. -H.** for the *ENZO* Collaboration, "*Enzo*: An Adaptive Mesh Refinement Code for Astrophysics", *astro-ph:1307.2265, ApJS 211 (2014) 19*

● **5)** **Kim, J. -H.***, & Lee, J., "How Does the Surface Density and Size of Disk Galaxies Measured in Hydrodynamic Simulations Correlate with the Halo Spin Parameter?", *astro-ph:1210.8321, MNRAS 432 (2013) 1701*

● **4)** **Kim, J. -H.***, Krumholz, M. R., Wise, J. H., Turk, M. J., Goldbaum, N. J., & Abel, T., "Dwarf Galaxies with Ionizing Radiation Feedback. II: Spatially-resolved Star Formation Relation", *astro-ph:1210.6988, ApJ 779 (2013) 8*

● **3)** **Kim, J. -H.***, Krumholz, M. R., Wise, J. H., Turk, M. J., Goldbaum, N. J., & Abel, T., "Dwarf Galaxies with Ionizing Radiation Feedback. I: Escape of Ionizing Photons", *astro-ph:1210.3361, ApJ 775 (2013) 109*

● **2)** **Kim, J. -H.***, Wise, J. H., Alvarez, M. A., & Abel, T., "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes. I: Feedback-regulated Star Formation and Black Hole Growth", *astro-ph:1106.4007, ApJ 738 (2011) 54*

● **1)** **Kim, J. -H.***, Wise, J. H., & Abel, T., "Galaxy Mergers with Adaptive Mesh Refinement: Star Formation and Hot Gas Outflow", *astro-ph:0902.3001, ApJ Letters 694 (2009) L123*

OTHER CONTRIBUTIONS:

● **6)** Shin, E. -J., & **Kim, J. -H.***, "News and Views: Giant Collision Created Galaxies Devoid of Dark Matter", *Nature 605 (2022) 427*

● **5)** Roca-Fabrega, S., **Kim, J. -H.**, Primack, J. R., & 11 other co-authors for the *AGORA* Collaboration, "The *AGORA* High-resolution Galaxy Simulations Comparison Project: Public Data Release", *astro-ph:2001.04354*

● **4)** Pineda, J. L. et al. including **Kim, J. -H.**, "Bridging the Gap: Observations and Theory of Star Formation Meet on Large and Small Scales", *Keck Institute for Space Studies Report, Pasadena, CA, November 2014*

● **3)** Kaehler, R., Abel, T., & **Kim, J. -H.**, "Visualization of a High-resolution Galaxy Formation Simulation", *SuperComputing '11 Scientific Visualization Companion Proceedings, pp. 133-134, Seattle, WA, November 2011*

● **2)** **Kim, J. -H.**, "Galaxy Formation and Mergers with Stars and Massive Black Holes", *Doctoral Dissertation, Stanford University, Stanford, CA, May 2011*

● **1)** **Kim, J. -H.**, Wise, J. H., & Abel, T., "Galaxy Evolution on Adaptive Mesh Refinement", *First Stars III Conference, AIP Conference Proceedings, Vol. 990 (2008) pp. 429-431, Santa Fe, NM, July 2007*

PROFESSIONAL AND OUTREACH SERVICES:

2024	**Organizer,** 12th Workshop for the *AGORA* Project, online (Aug. 8, 2024)
2024	**Organizer,** 2nd CTP Bosan Workshop: AGORA in Asia + 5th Numerical Galaxy Formation Meeting at SNU (May 7-10, 2024)
2024 -	Professional Committees Served: Academic Affairs/Korean Astronomical Society,
2023	Member, Scientific Organizing Committee for "Galaxy Formation in Hangzhou: Observations and Physics of AGN Feedback", Hangzhou, China (Oct. 10-13, 2023)
2023	Organizer, 11th Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 11-12, 2023)
2023 -	Organizer, Kyewon Public Lecture, Center for Theoretical Physics, SNU
2023	Co-organizer, 4th Numerical Galaxy Formation Workshop at Konjiam (Jan. 11, 2023)
2023 - 2024	**Member, Board of Directors,** Korean Astronomical Society
2022	Organizer, 10th Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 19-20, 2022)
2022	Mentor, SNU Science Education Institute for The Gifted (Physics)
2022	Organizer, 8th Korea Astronomy Machine Learning Meeting, online (Feb. 22, 2022)
2022	Speaker, SNU-Naver Lecture Series: One Thousand Keywords (Feb. 11, 2022)
2022	Organizer, 3rd Numerical Galaxy Formation Workshop, online (Jan. 25, 2022)
2021	Organizer, 9th Workshop for the *AGORA* Project, online (Aug. 12-13, 2021)
2021	Speaker, KAOS Foundation Science Concert (*Knowledge Awakening On Stage*; Jul. 28, 2021)
2021	Co-organizer, 2nd Numerical Galaxy Formation Workshop, online (Jan. 28, 2021)
2020	Organizer, 1st Numerical Galaxy Formation Workshop at SNU (Jan. 16, 2020)
2019	Organizer, 8th Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 9-10, 2019)
2019 - 2022	Member, National Organizing Committee for the International Astronomical Union General Assembly 2022, Busan, Korea (Aug. 2-11, 2022)
2018 -	Member, Korea e-Science Forum, Korea Institute of Science and Technology Information
2018	Organizer, 7th Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 10-11, 2018)
2018 -	Department Committees Served: Graduate Admission and Qualification, Academic Affairs, Student Affairs and Scholarship, Department Planning, Faculty Search and Hiring
2018 -	**Professional Memberships**: International Astronomical Union, Korean Physical Society, Korean Astronomical Society

2017	Organizer, 6th Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 11-13, 2017)
2016	Expert Referee, DiRAC Resource Allocation Committee, the United Kingdom
2016	External Review Panel, NASA Postdoctoral Program Fellowship
2016	Organizer, 5th Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 12-14, 2016)
2015	Organizer, 4th Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 21-23, 2015)
2015	External Review Panel, Department of Energy ASCR Leadership Computing Challenge
2015	External Review Panel, NASA Earth and Space Science Fellowship
2014	Organizer, 3rd Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 15-17, 2014)
2014 -	**Referees Served**: Astrophysical Journal, Astrophysical Journal Letters, Monthly Notices of the Royal Astronomical Society, Astronomy and Computing, Journal of the Korean Astronomical Society
2013	Organizer, 2nd Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 16-18, 2013)
2012	External Review Panel, NASA Earth and Space Science Fellowship
2012	Organizer, 1st Workshop for the *AGORA* Project at UC Santa Cruz (Aug. 17-19, 2012)
2012 -	**Project Coordinator,** *AGORA* High-resolution Galaxy Simulations Comparison Project
2010	Provided a movie data of cosmological galaxy mergers and structure formation for the SLAC booth in the SuperComputing '10 conference (SC2010), New Orleans, LA
2010	Provided a movie data of cosmological galaxy mergers for the Hayden Planetarium at the American Museum of Natural History, NY in the program of "The Big Bang"
2007 - 2011	KIPAC/SLAC Visualization Laboratory Presenter, Laboratory Tour Guide
2007 - 2009	Volunteer, SLAC Kids' Day
2002 - 2004	Lieutenant, Company Commander & Battalion Staff Officer, the Republic of Korea Army

TEACHING EXPERIENCES:

2024	Lecturer, Korea Institute for Advanced Studies Astrophysics Summer School 2024, *Reproducibility in Astrophysical Simulations*
2024	**Lecturer,** 2 semesters, Seoul National University, *Physics I & II (for physics/astronomy majors)*
2023	Lecturer, Korea Institute for Advanced Studies Astrophysics Summer School 2023, *Back of the Envelope (Astro)Physics*
2023	**Lecturer,** 2 semesters, Seoul National University, *Physics I & II (for physics/astronomy majors)*
2022	**Lecturer,** 1 semester, Seoul National University, *Mathematical Physics I*
2022	Lecturer, Korea Institute for Advanced Studies Astrophysics Summer School 2022, *Supermassive Black Holes*
2022	**Lecturer,** 1 semester, Seoul National University, *Physics I*
2021	**Lecturer,** 1 semester, Seoul National University, *Mathematical Physics I*
2020	**Lecturer,** 2 semesters, Seoul National University, *Classical Mechanics I & II*
2019	Lecturer, Korea Institute for Advanced Studies - SNU Physics Winter Camp 2019, *Astrophysical Black Holes*
2019	**Lecturer,** 2 semesters, Seoul National University, *Classical Mechanics I & II*

2018	Lecturer, Korea Institute for Advanced Studies - SNU Physics Winter Camp 2018, *Astrophysical Dark Matter*
2018	**Lecturer,** 1 semester, Seoul National University, *Topics in Modern Astrophysics and Cosmology*
2018	Guest Lecturer, Seoul National University, *Classical Mechanics*
2016	Guest Lecturer, Stanford University, *Computational Cosmology and Astrophysics*
2014	Guest Lecturer, California Institute of Technology, *Cosmology and Galaxy Formation*
2009	Teaching Assistant, 1 quarter, Stanford University, *Black Holes*
2008	Course Grader, 1 quarter, Stanford University, *Introduction to Astrophysics*
2007	Teaching Assistant, 1 quarter, Stanford University, *Modern Physics Laboratory*
2007	Teaching Assistant, 1 quarter, Stanford University, *Physics*

MENTORING EXPERIENCES:

- Postdoctoral scholars : Dr. Keita Fukushima (10/2024 -),
  Dr. Seungsoo Hong (12/2023 -),
  Dr. Boon Kiat Oh (10/2019 - 09/2022, → postdoc @ University of Connecticut)

- Ph. D. students : Jun Yong Park (09/2022 -), Minyong Jung (09/2021 -), Seungjae Lee (09/2019 -),
  Eun-jin Shin (03/2018 - 08/2023, → postdoc @ University of Cambridge),
  Yongseok Jo (03/2018 - 08/2022, → postdoc @ Columbia University & Flatiron Institute)

- M. Sci. students : Eunwoo Chung (09/2024 -), Hyeonyong Kim (09/2023 -),
  Ki-won Kim (09/2018 - 08/2019)

- B. Sci. interns : Gyujin Kim (07/2024 -), Geon Hee Kim (06/2024 -),
  Abdelrahman Helal (09/2023 - 12/2023, from Minerva U.),
  Youngjun Cho (08/2023 - 11/2023, from UNIST), Junhwa Jang (03/2023 - 06/2024),
  Hwan Hee Chung (03/2023 - 03/2024), Donghwan Hyun (12/2022 - 02/2024, Thesis),
  Subo Hwang (12/2022 - 02/2024, Thesis), Eunwoo Chung (12/2022 - 02/2024, Thesis),
  Han Noh (07/2022 - 08/2022, from Andong U.),
  Yong-uk Cho (06/2022 - 08/2022, from KyungHee U.),
  Seoyoung Kim (12/2021 - 05/2024), Jun-Young Lee (12/2021 -),
  Ho-sung Lee (09/2021 - 01/2022), Junhee Myong (06/2021 - 05/2023),
  Ahram Lee (03/2021 - 05/2022), Hyeongmo Kim (01/2021 - 09/2021),
  Minju Kum (12/2020 - 02/2021), Songyoun Park (10/2020 - 04/2022),
  Hyeonyong Kim (09/2020 - 02/2023), Lael Shin (09/2020 - 03/2021, Thesis),
  Eunhee Ko (09/2020 - 02/2021, Thesis), Su-un Lee (08/2020 - 10/2021, Thesis),
  Hongjun An (08/2020 - 02/2021,Thesis), Hyerin Cho (01/2020 - 08/2020, from GIST),
  Sangmin Bae (12/2019 - 07/2020), Eonho Chang (10/2019 - 12/2019, from UC Santa Cruz),
  Joohyun Lee (09/2019 - 08/2021, Thesis), Seung-o Ha (07/2019 - 08/2019, from Postech),
  Goojin Kwon (07/2019 - 09/2019, 06/2020 - 05/2021, 09/2021 - 11/2021, from U. Cambridge),
  Minyong Jung (03/2019 - 08/2020), Sangmoon Lee (03/2019 - 08/2019, Thesis)

COMPUTING EXPERIENCES:

- Administrator of a 720-processor Intel Xeon SP Gold + GPU cluster with max 1 TB memory/node (2018 -)

- Program experience: Enzo, Gadget, GIZMO, yt, MUSIC, VisIt, PartiView, HEALpix, CMBFast, etc.

- Language experience: C, C++, Fortran, IDL, Python, Java Applet, Visual Basic, Pascal, Matlab, etc.

RESEARCH INTERESTS:

- Coordinator, *AGORA* High-resolution Galaxy Simulations Comparison Project (AGORAsimulations.org)

- Galaxy Formation and Evolution using High-resolution Adaptive Mesh Refinement Simulations

- Radiative/Mechanical/Thermal Feedback from Massive Black Holes and Star-forming Molecular Clouds

- Growth of Supermassive Black Holes and Triggered Star Formation via Gas Inflow or Mergers

TALKS AND SEMINARS (SELECTED):

- **11th KIAS Workshop on Cosmology and Structure Formation**, *hosted by Korea Institute for Advanced Study,* TBD, *10/2024*

- **Symmetry and Structure of the Universe Workshop 2024**, *Jeonbuk National University,* TBD, *07/2024*

- **Physics Colloquium**, *Korea University,* "New Physics Changes Massive Black Holes' Evolution: Perspectives in the Era of High-resolution Simulations", *04/02/2024*

- **Inaugural Symposium of the Institute for Data Innovation in Science**, *Seoul National University,* "How Can Machine Learning Help Us When Studying Our Universe?", *03/28/2024*

- **Survey Science Group Workshop 2024**, *hosted by Korea Institute for Advanced Study,* "AGORA High-resolution Galaxy Simulations Comparison Initiative: 12 Years After Its Conception (and A 12-Year Human Experiment)", *01/31/2024*

- **Galaxy Formation in Hangzhou: Observations and Physics of AGN Feedback**, *hosted by Institute for Advanced Study in Physics, Zhejiang University and Shanghai Astronomical Observatory, Chinese Academy of Sciences,* "How Including New Physics Changes Massive Black Holes' Evolution: Perspectives in the Era of High-resolution Simulations", *10/11/2023*

- **Korea Supercomputing Conference 2023**, *hosted by Korea Institute of Science and Technology Information,* "How Can Machine Learning Help Us When Studying and Simulating the Universe?", *08/22/2023*

- **DARWIN+Dwarf Galaxy Workshop**, *Korea Astronomy and Space Science Institute,* "How Can Machine Learning Help Us When Studying and Simulating the Universe?", *08/16/2023*

- **Santa Cruz Galaxy Formation Workshop+11th *AGORA* Workshop**, *UC Santa Cruz,* "Overview of the AGORA Project" *(joint with Joel Primack and Santi Roca-Fabrega), 08/11/2023*

- **XV International Conference on Gravitation, Astrophysics and Cosmology**, *hosted by Asia Pacific Center for Theoretical Physics,* "How Including New Physics Changes Massive Black Holes' Evolution: Perspectives in the Era of High-resolution Simulations", *07/06/2023*

- **Cosmology Workshop on the Crossroad of Astrophysics and Particle Physics**, *hosted by Korea Institute for Advanced Study,* "Studying Dark Matter Using Realistic Simulations", *06/29/2023*

- **Astronomy Colloquium**, *Chungnam National University,* "Taking on the Mysteries in the Universe in the Era of High-resolution Simulations", *06/07/2023*

- **10th KIAS Workshop on Cosmology and Structure Formation**, *Korea Institute for Advanced Study,* "How Including New Physics Changes Galactic Evolution In Simulations: Perspectives in the Era of High-resolution Simulations", *10/28/2022*

- **9th East Asian Numerical Astrophysics Meeting**, *Tenbusu Hall, Okinawa, hosted by Chiba University,* "How Feedback Affects Galactic Evolution: Perspectives in the Era of High-resolution Simulations", *09/26/2022*

- **Santa Cruz Galaxy Formation Workshop+10th *AGORA* Workshop**, *UC Santa Cruz,* "The AGORA Project To Compare Zoom-in Cosmological Simulations By The Leading Hydro Codes of A MW-mass Galaxy" *(joint with Joel Primack), 08/19/2022*

● **International Astronomical Union Symposium 373: Resolving the Rise and Fall of Star Formation in Galaxies (at IAU General Assembly XXXI)**, *Busan Exhibition and Convention Center, co-hosted by Korean Astronomical Society and Korea Astronomy and Space Science Institute,* "How Feedback Affects Stellar and Galactic Evolution: Perspectives in the Era of High-resolution Simulations", *08/10/2022*

● **Center for Theoretical Physics Colloquium**, *Seoul National University,* "Observational Astrophysics Primer To Prep For JWST Star Party", *07/20/2022*

● **1st H. S. Yun Astronomy Workshop**, *Seoul National University Siheung Convention Center, hosted by SNU Astronomy Research Center,* "Computational Cosmology Research", *06/30/2022*

● **Saturday Science Open Lecture**, *Seoul National University,* "Studying Our Universe Like A Pro (III)", *04/09/2022*

● **Beyond the Standard Model Workshop 2022**, *Chung-Ang University,* "Solving the Mysteries of Supermassive Black Holes in the Era of High-resolution Simulations", *02/10/2022*

● **Physics Colloquium**, *Ajou University,* "Solving the Mysteries of Supermassive Black Holes in the Era of High-resolution Simulations", *12/08/2021*

● **Annual Forum 2021**, *Samsung Science & Technology Foundation,* "Towards The Unabridged Understandings of The Growth of Supermassive Black Holes", *11/22/2021*

● **Saturday Science Open Lecture**, *Seoul National University,* "Studying Our Universe Like A Pro (II)", *11/20/2021*

● **Astronomy Colloquium**, *Shanghai Jiao Tong University,* "Solving the Mysteries of Galaxy and Supermassive Black Hole Formation in the Era of High-resolution Simulations", *10/20/2021*

● **Astrophysics Seminar**, *Institute of Particle and Cosmos Physics, Universidad Complutense de Madrid,* "Solving the Mysteries of Galaxy and Supermassive Black Hole Formation in the Era of High-resolution Simulations and Machine Learning", *05/14/2021*

● **Saturday Science Open Lecture**, *Seoul National University,* "Studying Our Universe Like A Pro", *05/01/2021*

● **Physics Colloquium**, *Yonsei University,* "Solving the Mysteries of Supermassive Black Holes in the Era of High-resolution Simulations", *04/28/2021*

● **7th Galaxy Evolution Workshop**, *Institute of Astronomy and Astrophysics, Academia Sinica, National Taiwan University,* "Solving the Mysteries of Galaxy and Supermassive Black Hole Formation in the Era of High-resolution Simulations and Machine Learning", *02/03/2021*

● **College of Education Seminar**, *Chosun University,* "Exoplanets: From Mythology To Science", *12/23/2020*

● **Physics Colloquium**, *Chung-Ang University,* "Solving the Mysteries of Supermassive Black Holes in the Era of High-resolution Simulations", *12/07/2020*

● **Theoretical Astrophysics Colloquium**, *Osaka University,* "Solving the Mysteries of Galaxy and Supermassive Black Hole Formation in the Era of High-resolution Simulations and Machine Learning", *10/21/2020*

● **Numerical Astrophysics Workshop at Korea Supercomputing Conference 2020**, *hosted by Korea Institute of Science and Technology Information,* "Numerical Galaxy Formation in the Era of High-resolution Simulations and Machine Learning", *09/24/2020*

● **Science and Policy Advanced Research Course (SPARC)**, *Seoul National University,* "Exoplanets: From Mythology To Science", *01/07/2020*

● **Galaxy Formation and Evolution Across Cosmic Time**, *Institute of Astronomy and Astrophysics, Academia Sinica, National Taiwan University,* "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *12/11/2019*

● **Astronomy Colloquium**, *Yonsei University*, "Upcoming Era in Numerical Galaxy Formation: New Possibilities and Challenges", *12/03/2019*

● **Center for Theoretical Physics Colloquium**, *Seoul National University*, "How To Make Your Own Universe On A Computer: Success and Challenges", *11/08/2019*

● **XAIENCE: Crossing-over the AI and Science**, *Seoul National University*, "Machine Learning In Astrophysics & Cosmology: Estimating Galactic Baryonic Properties from Their Dark Matter", *11/07/2019*

● **Special Physics Colloquium**, *Seoul National University*, "Cosmology and Exoplanets: How Scientists Turned Mythology Into Physics", *10/30/2019*

● **Zurich Meets Seoul**, *co-hosted by University of Zurich and Seoul National University*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *10/01/2019*

● **Santa Cruz Galaxy Formation Workshop+8th *AGORA* Workshop**, *UC Santa Cruz*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *08/08/2019*, "AGORA Project Update: 7 Years After Conception" *(joint with Joel Primack & Santi Roca-Fabrega)*, *08/09/2019*

● **4th Korean-American Kavli Frontiers of Science Symposium**, *co-sponsored by the U.S. National Academy of Sciences (NAS) and the Korean Academy of Science and Technology (KAST)*, "Upcoming Era in Numerical Galaxy Formation: New Possibilities and Challenges", *06/19/2019*

● **Astronomy Colloquium**, *Kyungpook University*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *06/04/2019*

● **95th Korean Physical Society Meeting**, *hosted by KPS*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *04/26/2019*

● **Extremely Big Eyes on the Early Universe**, *Kavli Institute for the Physics and Mathematics of the Universe, University of Tokyo*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *03/25/2019*

● **Physics Colloquium**, *Seoul National University*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *12/05/2018*

● **Physics and Astronomy Colloquium**, *Sejong University*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *11/21/2018*

● **8th KIAS Workshop on Cosmology and Structure Formation**, *Korea Institute for Advanced Study*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *11/06/2018*

● **99th Korean Astronomical Society Meeting**, *hosted by KAS*, "Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers", *10/10/2018*

● **Physics Seminar**, *Korea Institute for Advanced Study*, "Dark Matter: A Computational Astrophysicist's Perspective", *10/08/2018*

● **Particle Physics Korea Meeting**, *Seoul National University*, "Dark Matter: A Computational Astrophysicist's Perspective", *09/28/2018*

● **Santa Cruz Galaxy Formation Workshop+7th *AGORA* Workshop**, *UC Santa Cruz*, "Overview of the AGORA High-resolution Cosmological Galaxy Simulations Comparison Project: 6 Years After Conception" *(joint with Joel Primack)*, *08/10/2018*

● **KDESci Meeting**, *Korea Institute for Advanced Study*, "Insights from the AGORA High-resolution Galaxy Simulations Comparison", *07/09/2018*

● **Galaxies A to Z Workshop**, *hosted by Center for Galaxy Evolution Research, Yonsei University*, "Studying the Interaction of Supermassive Black Holes and Their Host Galaxies", *06/26/2018*

● **Astronomy Colloquium**, *Seoul National University*, "Upcoming Era in Numerical Galaxy Formation: New Possibilities and Challenges", *05/24/2018*

● **Santa Cruz Galaxy Formation Workshop+6th AGORA Workshop**, *UC Santa Cruz*, "Reproducibility: An Insight from the AGORA High-resolution Galaxy Simulations Comparison", *08/11/2017*

● **Einstein Fellows Symposium 2016**, *Harvard-Smithsonian Center for Astrophysics*, "Reproducibility: An Insight from the AGORA High-resolution Galaxy Simulations Comparison", *10/18/2016*

● **Santa Cruz Galaxy Formation Workshop+5th AGORA Workshop**, *UC Santa Cruz*, "The AGORA High-resolution Galaxy Simulations Comparison. II: Isolated Disk Test - Kickoff Discussion", *08/12/2016*

● **Einstein Fellows Symposium 2015**, *Harvard-Smithsonian Center for Astrophysics*, "Upcoming New Era in Numerical Galaxy Formation: New Challenges and Possibilities", *10/27/2015*

● **Santa Cruz Galaxy Formation Workshop+4th AGORA Workshop**, *UC Santa Cruz*, "AGORA Initiative and Infrastructure: Where We Stand and Why We Are Here", *08/21/2015*

● **KIPAC Tea Talk**, *SLAC National Accelerator Laboratory*, "Challenges in Numerical Galaxy Formation and the AGORA Initiative", *07/24/2015*

● **Pasadena Astronomy Postdoc Symposium 2015**, *UCLA Lake Arrowhead Conference Center*, "Challenges in Numerical Galaxy Formation and the AGORA Initiative", *04/09/2015*

● **Astronomy Theory Postdoc Lunch**, *California Institute of Technology*, "AGORA High-resolution Galaxy Simulations Comparison Project", *01/22/2015*

● **Astronomy Colloquium**, *Seoul National University*, "Galaxy Formation Simulations in the High-resolution Era: Success and Challenge", *12/10/2014*

● **Einstein Fellows Symposium 2014**, *Harvard-Smithsonian Center for Astrophysics*, "Challenges in Numerical Galaxy Formation and the AGORA Initiative", *10/28/2014*

● **Santa Cruz Galaxy Formation Workshop+3rd *AGORA* Workshop**, *UC Santa Cruz*, "Status of the AGORA High-resolution Cosmological Galaxy Simulations Comparison Project: 2 Years After Conception" *(joint with Joel Primack)*, *08/15/2014*

● **Carnegie Observatories Colloquium Series**, *Carnegie Observatories*, "Rethinking Galaxy Simulations in the High-resolution Era", *03/18/2014*

● **Santa Cruz Galaxy Formation Workshop+2nd *AGORA* Workshop**, *UC Santa Cruz*, "The *AGORA* Project: Initial Conditions and the Proof-of-concept Test", *08/16/2013*

● **Cosmology Seminar**, *Stanford University*, "Rethinking Galaxy Simulations in the High-resolution Era", *05/20/2013*

● **Santa Cruz Galaxy Formation Workshop+Starting Workshop for the AGORA High-resolution Galaxy Simulations Comparison Project**, *UC Santa Cruz*, "Galaxy Formation with Radiating Molecular Cloud Particles", *08/17/2012*

● **Workshop for Korean Young Cosmologists**, *Korea Astronomy and Space Science Institute*, "High-resolution Galaxy Formation with Massive Black Holes and Radiating Star Clusters", *06/25/2012*

● **SLAC Association for Student Seminars**, *SLAC National Accelerator Laboratory*, *05/11/2011*

● **KIPAC Tea Talk**, *SLAC National Accelerator Laboratory*, "Galaxy Formation and Mergers with Self-consistently Modeled Stars and Massive Black Holes", *04/08/2011*

● **Friday Lunchtime Astrophysics Seminar**, *UC Santa Cruz*, "Towards An Unabridged Understanding of The Coevolution of Galaxies and Massive Black Holes: What Have Simulators Tried? Why So Hard?", *12/10/2010*

- **Computational Astrophysics Group Seminar**, *University of Chicago*, "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes: Towards An Unabridged Understanding of Their Coevolution", *12/03/2010*

- **Computational Cosmology and Galaxy Formation Seminar**, *Princeton University*, "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes: Towards An Unabridged Understanding of Their Coevolution", *11/15/2010*

- **Theoretical Astrophysics Center Seminar,** *UC Berkeley*, "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes: Towards An Unabridged Understanding of Their Coevolution", *10/25/2010*

- **Cosmoclub Seminar**, *UC Santa Cruz*, "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes: Towards An Unabridged Understanding of Their Coevolution", *10/18/2010*

- **Friday Astro Lunch**, *UC Santa Barbara*, "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes: Towards An Unabridged Understanding of Their Coevolution", *10/15/2010*

- **Astronomy Tea Talk**, *California Institute of Technology*, "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes: Towards An Unabridged Understanding of Their Coevolution", *10/11/2010*

- **LCA Group Seminar**, *UC San Diego*, "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes", *09/30/2010*

- **Santa Cruz Galaxy Formation Workshop**, *UC Santa Cruz*, "Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes", *08/17/2010*

- **HIPACC Summer School on Galaxy Formation**, *University of California High-Performance AstroComputing Center*, "Galaxy Formation using Enzo with Properly Modeled Stars and Massive Black Holes", *07/28/2010*

- **Santa Cruz Galaxy Formation Workshop**, *UC Santa Cruz*, "Galaxy Mergers and Evolution with Adaptive Mesh Refinement", *08/19/2009*

- **Cosmology In Northern California Meeting (CINC09)**, *UC Santa Cruz*, "Galaxy Mergers and Evolution with Adaptive Mesh Refinement", *05/15/2009*

- **American Physical Society April Meeting**, *hosted by APS, Denver, Colorado*, "Galaxy Mergers with Adaptive Mesh Refinement: Star Formation and Hot Gas Outflow", *05/03/2009*

- **JILA Astrophysics Lunch**, *University of Colorado, Boulder*, "Galaxy Mergers with Adaptive Mesh Refinement", *05/01/2009*

- **Bay Area Star Formation Workshop**, *Stanford University*, "Galaxy Mergers with Adaptive Mesh Refinement", *11/14/2008*

- **KIPAC Tea Talk**, *SLAC National Accelerator Laboratory*, "Galaxy Mergers with Adaptive Mesh Refinement", *11/07/2008*

- **KIPAC Tea Talk**, *Stanford University*, "Simulating Galaxies on Adaptive Mesh Refinement", *04/24/2007*