

SAN HAN

sanhan@yonsei.ac.kr ◊ [🏠 https://sanhancluster.github.io](https://sanhancluster.github.io)

Yonsei University, 50 Yonsei-ro Seodaemun-gu, Seoul, 03722, Republic of Korea

🔗 <https://github.com/sanhancluster> ◊ [📁 https://bitbucket.org/sanhancluster](https://bitbucket.org/sanhancluster)

EDUCATION

Yonsei University

- Ph.D. (Joint Program), Astronomy
- B.S., Astronomy

(Expected) **2017–2024**
2013–2016

Korea Science Academy (high school)

2010–2012

RESEARCH EXPERIENCE

Large zoom-in simulation of a galaxy cluster

2019–now

- Supervised by Prof. Sukyoung K. Yi. Playing a primary role in the design and execution of NewCluster project, a high-resolution cosmological zoom-in simulation of a galaxy cluster.

Code Development for Simulations

2019–2023

- Developed RAMSES-yOMP, a modified version of the hydrodynamic simulation code RAMSES that features performance enhancement and chemical/dust evolution.
- Developed an efficient reading and imaging package for RAMSES output based on NumPy.

Velocity dispersion profiles of galaxies

2021–2023

- Supervised by Prof. Sukyoung K. Yi. Compared simulations and IFU observations to reconcile the origin of the various velocity dispersion profiles of galaxies.

Preprocessing of dark halos in clusters

2017–2018

- Supervised by Dr. Rory Smith and Prof. Sukyoung K. Yi. Used a cosmological simulation of galaxy clusters to quantify the impact of preprocessing on the population of dark halos in galaxy clusters.

SKILLS

Languages

Korean (Native), English

Programming & Data analysis

Python, Fortran, Java, Linux

High Performance Computing

RAMSES, MPI, OpenMP

PUBLICATIONS

ADS Publication List <https://ui.adsabs.harvard.edu/public-libraries/8GkonQ6JQfWG3Vhc-mDIkg>
ORCID [0000-0001-9939-713X](https://orcid.org/0000-0001-9939-713X)

Recently Submitted

On the Origin of the Variety of Velocity Dispersion Profiles of Galaxies (Submitted) **Aug 2023**
S. Han, S. K. Yi, S. Oh, M. Pak, S. M. Croom, J. Devriendt, Y. Dubois, T. Kimm, K. Kraljic, C. Pichon, M. Volonteri; submitted to **ApJ**, arXiv:2310.15534

Accepted

On the Significance of the Thick Disks of Disk Galaxies (Accepted) **Nov 2023**
 S. K. Yi, J. K. Jang, J. Devriendt, Y. Dubois, **S. Han**, T. Kimm, K. Kraljic, M. Park, S. Peirani,
 C. Pichon, J. Rhee; **ApJS**, arXiv:2308.03566

The Connection between the Intracluster Light and its Host Halo: Formation Time and Contribution from Different Channels (Accepted) **Oct 2023**
 E. Contini, S. Jeon, J. Rhee, **S. Han**, S. K. Yi; **ApJ**, arXiv:2310.20135

The Intracluster Light and its Link with the Dynamical State of the Host Group/Cluster: the Role of the Halo Concentration **2023**
 E. Contini, S. Jeon, J. Rhee, **S. Han**, S. K. Yi; **ApJ**, 958, 12

Star Formation History and Transition Epoch of Cluster Galaxies Based on the Horizon-AGN Simulation **2022**
 S. Jeon, S. K. Yi, Y. Dubois, A. Chung, J. Devriendt, **S. Han**, R. A. Jackson, T. Kimm, C. Pichon, J. Rhee; **ApJ**, 941, 13

YZiCS: On the Mass Segregation of Galaxies in Clusters **2020**
 S. Kim, E. Contini, H. Choi, **S. Han**, J. Lee, S. Oh, X. Kang, S. K. Yi; **ApJ**, 905, 8

YZiCS: Unveiling the Quenching History of Cluster Galaxies Using Phase-space Analysis **2020**
 J. Rhee, R. Smith, H. Choi, E. Contini, S. L. Jung, **S. Han**, S. K. Yi; **ApJ**, 247, 18

YZiCS: Preprocessing of Dark Halos in the Hydrodynamic Zoom-in Simulation of Clusters, **2018**
S. Han, R. Smith, H. Choi, L. Cortese, B. Catinella, E. Contini, S. K. Yi; **ApJ**, 866, 78

SELECTED CONFERENCE TALKS / POSTERS

IAP colloquium: New simulations for new problems in galaxy formation (Talk)	Dec 2023
Korea Astronomy Society Fall Meeting (Talk)	Oct 2023
Ramses User Meeting (Talk)	Apr 2023
Korea Astronomy Society Spring Meeting (Talk)	Apr 2023
European Astronomical Society Annual Meeting (Poster)	Jun 2022
Ramses User Meeting (Talk)	Sep 2021
Ramses User Meeting (Talk)	Oct 2021
American Astronomical Society 233 rd Meeting (Talk)	Jan 2019
Ramses User Meeting (Talk)	Sep 2018
Korea Astronomy Society Fall Meeting (Talk)	May 2018
Korea Astronomy Society Spring Meeting (Poster)	May 2018

SELECTED SUPERCOMPUTER TIME

KISTI HPC R&D Innovation Support Program (Grand Challenge)	2019
KSC-2019-CHA-0006	
KISTI HPC R&D Innovation Support Program (Creative Research)	2018–2023
KSC-2023-CRE-0343, KSC-2022-CRE-0409, KSC-2022-CRE-0344, KSC-2022-CRE-0088, KSC-2021-CRE-0486, KSC-2020-CRE-0280, KSC-2020-CRE-0055, KSC-2018-CRE-0114	

TEACHING EXPERIENCE

Teaching Assistant , Yonsei University	
– Earth & Universe	Fall 2018
– Galaxy & Universe 2	Spring 2018
– Astrophysics 2	Fall 2017
– Understanding of Space	Spring 2017

Teaching Assistant, Korea Astronomy Olympiad Winter School

2016-2017

AWARDS AND SCHOLARSHIPS

Brain Korea 21 Plus, National Research Foundation of Korea

2017-2023

The 6th Asian-Pacific Astronomy Olympiad, won the I-st prize

Dec 2010

OTHER ACTIVITIES

WouldYouLike, A student-run astronomy magazine dedicated to public outreach. Contributed as a writer.

2014-2016

Byeol-arum, Astronomical observation and outreach club. Participated as a science educator for the public.

2013-2016