

Sanghyuk Moon | Curriculum Vitae

Astronomy Program, Department of Physics & Astronomy
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Education

- 08/2022 (expected) **Ph.D in Astronomy**, Seoul National University
Advisor: Prof. Woong-Tae Kim
- 10/2019–12/2019 **Visiting Student Research Collaborator**, Princeton University
Advisor: Prof. Eve C. Ostriker
- 08/2016 **B.S. in Astronomy (minor: physics)**, Seoul National University
Advisor: Prof. Woong-Tae Kim

Honors

- 2017–2022 **Global Ph.D. Fellowship**, National Research Foundation of Korea

Code Development Contributions

- 2021–present Core developer of TIGRIS project (PI: Chang-Goo Kim)
Self-gravity with shearing-periodic, open, and mixed boundary conditions in Athena++
- 2018–2019 Poisson solver with open boundary conditions for Cartesian and cylindrical grids in Athena++
Algorithm development and MPI-parallel implementation.

Publications

1. Refereed Journals

- 01/2022 **Moon, S.**, Kim, W.-T., Kim, C.-G., and Ostriker, E. C. (2022). Effects of Varying Mass Inflows on Star Formation in Nuclear Rings of Barred Galaxies. *The Astrophysical Journal*, 925, 99–109. <http://dx.doi.org/10.3847/1538-4357/ac3a7b>
- 06/2021 **Moon, S.**, Kim, W.-T., Kim, C.-G., and Ostriker, E. C. (2021). Star Formation in Nuclear Rings with the TIGRESS Framework. *The Astrophysical Journal*, 914, 9–32. <http://dx.doi.org/10.3847/1538-4357/abfa93>
- 04/2019 **Moon, S.**, Kim, W.-T., and Ostriker, E. C. (2019). A Fast Poisson Solver of Second-order Accuracy for Isolated Systems in Three-dimensional Cartesian and Cylindrical Coordinates. *The Astrophysical Journal Supplement Series*, 241, 24–43. <http://dx.doi.org/10.3847/1538-4365/ab09e9>
- 09/2016 Kim, W.-T. and **Moon, S.** (2016). Equilibrium Sequences and Gravitational Instability of Rotating Isothermal Rings. *The Astrophysical Journal*, 829, 45–66. <http://dx.doi.org/10.3847/0004-637X/829/1/45>

2. Proceedings

- 09/2020 **Moon, S.** (2020). Three-Dimensional Cylindrical Poisson Solver with Vacuum Boundary Conditions. *Journal of Physics: Conference Series*, 1623(1), 012017. <http://dx.doi.org/10.1088/1742-6596/1623/1/012017>

Presentations

01/2022	Seminar , TAG Special Seminar, KASI, Daejeon, Korea (invited)
01/2022	Workshop , Origins Workshop, Salt Lake City, USA (invited)
11/2021	Seminar , Internal Group Meeting, Heidelberg, Germany
11/2021	Seminar , CCA Group Meeting, New York, USA
10/2021	Contributed Talk , 2021 KAS Fall Meeting, Seoul, Korea
04/2021	Contributed Talk , 2021 KAS Spring Meeting, Seoul, Korea
01/2021	Workshop , 2nd Numerical Galaxy Formation Mini-Workshop, Seoul, Korea
01/2020	Workshop , Numerical Galaxy Formation Mini-Workshop, Seoul, Korea
11/2019	Seminar , Star Formation/ISM Rendezvous, Princeton, USA (invited)
07/2019	Invited Talk , ASTRONUM 2019, Paris, France
04/2019	Contributed Talk , 2019 KAS Spring Meeting, Seoul, Korea
03/2019	Workshop , ATHENA++ workshop 2019, Las Vegas, USA (invited)
10/2016	Poster , 2016 KAS Fall Meeting, Seoul, Korea

Competitively-Obtained Computing Time

2021	National Supercomputing Center, KISTI, Korea (1.4×10^7 core-hours) <i>Co-I: Effects of Magnetic Fields on Star Formation in Galactic Nuclear Rings and Formation of Circumnuclear Disks</i>
2019	National Supercomputing Center, KISTI, Korea (2.0×10^7 core-hours) <i>Co-I: Understanding Star Formation in Centers of Disk Galaxies</i>

Computing skills

Language	C/C++, MPI, OpenMP, Python, Bash, HTML
CFD codes	Athena, Athena++, GIZMO
Other tools	GDB, Valgrind, Git, Jupyter, yt, pynbody, VisIt

Departmental Services and Teaching Experience

2021–present	Founder and Organizer , SNU Astronomy Graduate Student Journal Club
2019	Founding Member , SNU Open Astronomy Innovation Group
2018–2019	Founder and Organizer , SNU Astronomy Graduate Student Colloquium
2017	Graduate Student Representative in SNU Astronomy Department
2017	Teaching Assistant , Computational Astronomy
2016	Teaching Assistant , Introduction to Astrophysics

Academic References

- **Prof. Woong-Tae Kim**

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- **Prof. Bon-Chul Koo**

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- **Prof. Eve C. Ostriker**

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