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

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

Presentations

08/2022 **Contributed Talk**, IAUS373, Busan, Korea (*scheduled; e-talk*)

06/2022 **Poster**, AAS240, Pasadena, USA

04/2022 **Contributed Talk**, 2022 KAS Spring Meeting, Busan, Korea

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

Competitively-Obtained Computing Time

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

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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  Seoul National University
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- **Prof. Bon-Chul Koo**
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- **Prof. Eve C. Ostriker**
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