Sanghyuk Moon | Curriculum Vitae

Astronomy Program, Department of Physics & Astronomy
Seoul National University, Seoul, 08826, Republic of Korea
✉ s.moon@snu.ac.kr

Education

06/2022 (expected) **Ph.D in Astronomy**, Seoul National University, Korea
Advisor: Woong-Tae Kim

06/2016 **B.S. in Astronomy (minor: physics)**, Seoul National University, Korea

Honors and Awards

2017–2022 **Global Ph.D. Fellowship** (Sallary obtained from NRF: \$26,000/*yr*)
Dynamical Evolution and Star Formation in Central Molecular Zones

2016–2017 **Lecture & Research Scholarship**

2015 **National Scholarship for Science and Engineering**

2014 **SNU Development Fund Scholarship**

2013 **ASAN foundation Scholarship**

Code Development Contributions

2021–present Core developer of `TIGRIS` project (PI: Chang-Goo Kim)
Self-gravity with shearing-periodic, open, and mixed boundary conditions

2018–2019 Poisson solver with open boundary conditions for Cartesian and cylindrical grids in `Athena++`
Used in Mullen & Gammie (2020), Baehr et al. (in prep.)

Publications

Refereed **Moon, S.**, Kim, W.-T., Kim, C.-G., and Ostriker, E. C., *Star Formation in Nuclear Rings with the TIGRESS Framework*, ApJ, 914, 9, 2021

Moon, S., Kim, W.-T., and Ostriker, E. C., *A Fast Poisson Solver of Second-order Accuracy for Isolated Systems in Three-dimensional Cartesian and Cylindrical Coordinates*, ApJS, 241, 24, 2019

Kim, W.-T. and **Moon, S.**, *Equilibrium Sequences and Gravitational Instability of Rotating Isothermal Rings*, ApJ, 829, 45, 2016

Proceedings **Moon, S.**, *Three-Dimensional Cylindrical Poisson Solver with Vacuum Boundary Conditions*, J. Phys.: Conf. Ser., 1623, 012017

In Preperation **Moon, S.**, Kim, W.-T., Kim, C.-G., and Ostriker, E. C., *Effects of Varying Mass Inflows on Star Formation in Nuclear Rings of Barred Galaxies*, *in prep.*

Moon, S., Kim, W.-T., Kim, C.-G., and Ostriker, E. C., *Effects of Magnetic Field on Star Formation in Nuclear Rings of Barred Galaxies*, *in prep.*

Presentations

11/2021 **Seminar**, Internal Group Meeting, Heidelberg, Germany (*scheduled*)

11/2021	**Seminar**, CCA Group Meeting, New York, USA (*scheduled*)
10/2021	**Contributed Talk**, 2021 KAS Fall Meeting, Seoul, Korea (*scheduled*)
04/2021	**Contributed Talk**, 2021 KAS Spring Meeting, Seoul, Korea
01/2021	**Workshop Talk**, 2nd Numerical Galaxy Formation Mini-Workshop, Seoul, Korea
01/2020	**Workshop Talk**, Numerical Galaxy Formation Mini-Workshop, Seoul, Korea
11/2019	**Invited Seminar**, Star Formation/ISM Rendezvous (SFIR), Princeton, USA
07/2019	**Invited Talk**, ASTRONUM 2019, Paris, France
04/2019	**Contributed Talk**, 2019 KAS Spring Meeting, Seoul, Korea
03/2019	**Invited Talk**, ATHENA++ workshop 2019, Las Vegas, USA
10/2016	**Poster**, 2016 KAS Fall Meeting, Seoul, Korea

Research Experience

10/2019–12/2019	**Princeton University** (two months; *Mentor*: Prof. Eve C. Ostriker) *Visiting Student Research Collaborator*
01/2019–01/2019	**Princeton University** (two weeks; *Mentor*: Prof. Eve C. Ostriker)
07/2018–08/2018	**Princeton University** (two weeks; *Mentor*: Prof. Eve C. Ostriker)
12/2017–12/2017	**Osaka University** (four days; *Mentor*: Prof. Kengo Tomida)

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

Professional Services and Teaching Experience

2021–*present*	**Founder and Organizer**, SNU Astronomy Graduate Student Journal Club
2018–2019	**Founder and Organizer**, SNU Astronomy Graduate Student Colloquium
2017	**Teaching Assistant**, Computational Astronomy
2016	**Teaching Assistant**, Introduction to Astrophysics