

# Sanghyuk Moon | Curriculum Vitae

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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 (*e-talk*)
- 06/2022 **Poster**, AAS240, Pasadena, USA
- 04/2022 **Contributed Talk**, 2022 KAS Spring Meeting, Busan, Korea

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

### Competitively-Obtained Computing Time

2021	<b>National Supercomputing Center, KISTI, Korea</b> ( $1.4 \times 10^7$ core-hours) <i>Co-I: Effects of Magnetic Fields on Star Formation in Galactic Nuclear Rings and Formation of Circumnuclear Disks</i>
2019	<b>National Supercomputing Center, KISTI, Korea</b> ( $2.0 \times 10^7$ 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	<b>Founder and Organizer</b> , SNU Astronomy Graduate Student Journal Club
2019	<b>Founding Member</b> , SNU Open Astronomy Innovation Group
2018–2019	<b>Founder and Organizer</b> , SNU Astronomy Graduate Student Colloquium
2017	<b>Graduate Student Representative</b> in SNU Astronomy Department
2017	<b>Teaching Assistant</b> , Computational Astronomy
2016	<b>Teaching Assistant</b> , 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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