

# Sanghyuk Moon | Curriculum Vitae

Department of Astrophysical Sciences  
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## Employment

10/2022–*present* **Postdoctoral Research Associate**, Princeton University

## Education

09/2016–08/2022 **Ph.D in Astronomy**, Seoul National University

03/2012–08/2016 **B.S. in Astronomy (minor: physics)**, Seoul National University

## Honors

08/2022 **Best PhD Thesis Award**, SNU CNS

03/2017–02/2022 **Global Ph.D. Fellowship**, NRF Korea

## Advising Experience

2022–*present* **Woorak Choi**, PhD student in Yonsei University, *Giant molecular clouds in the nuclear ring of barred galaxies*, co-advised with Prof. Aeree Chung and Dr. Chang-Goo Kim

## Code Development Contributions

2023 **GRID-dendro**: a python implementation of the hierarchical structure identification algorithm of [Mao et al. \(2020\)](#)

2021–*present* Core developer of TIGRIS project (PI: Chang-Goo Kim)  
*Self-gravity and sink particles*

2018–2019 James Poisson solver in Cartesian/cylindrical coordinates in Athena++

## Publications

04/2023 **Moon, S.**, Kim, W.-T., Kim, C.-G., and Ostriker, E. C. (2023). Effects of Magnetic Fields on Gas Dynamics and Star Formation in Nuclear Rings. *The Astrophysical Journal*, 946, 114. <https://doi.org/10.3847/1538-4357/acc250>

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. <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. <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. <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. <http://dx.doi.org/10.3847/0004-637X/829/1/45>

## Presentations

- 02/2024 **Seminar**, Galaxy Journal Club at STScI, Baltimore, USA
- 02/2024 **Seminar**, Star Formation/ISM Rendezvous, Princeton, USA
- 12/2023 **Seminar**, Bahcall Lunch, Princeton, USA
- 06/2023 **Poster**, The Physics of Star Formation, Lyon, France
- 05/2023 **Invited Talk**, ATHENA++ Workshop 2023, New York, USA
- 04/2023 **Contributed Talk**, Galactic Center Workshop, Granada, Spain
- 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 **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 **Invited Talk**, 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** ( $1.4 \times 10^7$  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** ( $2.0 \times 10^7$  core-hours)  
*Co-I: Understanding Star Formation in Centers of Disk Galaxies*

## Departmental Services and Teaching Experience

2021–2022	<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 (aka Golloquium)
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. Eve C. Ostriker**  
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