Curriculum Vitae

SHOJI MORI

Institute of Advanced Study, Tsinghua University, Beijing, China
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Education:

March 2019: Ph.D., Department of Earth and Planetary Sciences, Tokyo Institute of Technology (with Associate Prof. Satoshi Okuzumi, Tokyo Institute of Technology)
March 2016: M.S., Department of Earth and Planetary Sciences, Tokyo Institute of Technology (with Associate Prof. Satoshi Okuzumi, Tokyo Institute of Technology)
March 2014: B.S., Department of Earth and Planetary Sciences, Tokyo Institute of Technology (with Assistant Prof. Satoshi Okuzumi, Tokyo Institute of Technology)

Employment:

December 2023 - present, Shuimu Fellowship, Tsinghua University, China
April 2021 - November 2023, JSPS Fellowship, Tohoku University, Japan
April 2019 - March 2021, Postdoctoral researcher, The University of Tokyo, Japan
April 2017 - March 2019, JSPS Research Fellowship for Young Scientists (DC2), Japan

Awards:

2023/7: Shuimu Tsinghua scholar (overseas), Tsinghua University
2016/7/28: Poster Presentation Award, "*47th Summer School on Astronomy and Astrophysics for Young Astronomers*".
2016/7/29: Poster Presentation Award, "*46th Summer School on Astronomy and Astrophysics for Young Astronomers*".
2015/7/30: Poster Presentation Award, "*45th Summer School on Astronomy and Astrophysics for Young Astronomers*"
2014/8/8: Best Poster Presentation Award, "*The 7th meeting on Cosmic Dust*"

Review Experience:

Referee for The Astronomical Journal (AJ), Monthly Notices of the Royal Astronomical Society (MNRAS), Research in Astronomy and Astrophysics (RAA)

Academic Society:

2015 – present: The Astronomical Society of Japan
2013 – present: The Japanese Society for Planetary Sciences
2014 – present: Japan Geoscience Union

Computing Resource:

Cray XC30/XC50 supercomputers (Categories XC-Trial to XC-B) at the National Astronomical Observatory of Japan (2016–present).

Graduate Students:

Katsushi Kondo (Ph.D. student, Institute of Science Tokyo), co-supervised with Prof. Satoshi Okuzumi (Institute of Science Tokyo), 2021–present

Haruhi Enomoto (Ph.D. student, Institute of Science Tokyo), co-supervised with Prof. Satoshi Okuzumi (Institute of Science Tokyo), 2021–present
Yu Wang (Ph.D. student, Tsinghua University), mentored with Prof. Chris Ormel, 2024-present
Dawei Dai (Ph.D. student, Tsinghua University), co-supervised with Associate Prof. Masahiro Ogihara (Tsingdao-Lee Institute), 2024–present

Teaching:

April 2023 – September 2023: Part-time Lecturer, Physics, National Institute of Technology, Ichinoseki College
2016: Teaching assistant, Computational Planetary Science, Tokyo Institute of Technology
2014: Teaching assistant, Computational Planetary Science, Tokyo Institute of Technology

Outreach Activity:

2016/10/8–9, School festival in Tokyo Institute of Technology,
S. Mori, Short talk, "Toward the understanding of planet formation process"
S. Mori, Web development, http://www.geo.titech.ac.jp/lab/koudaisai/

Research grants:

1. JSPS Research Fellowship for Young Scientists (DC2)
   Project title: "A new model of magnetohydrodynamic turbulence and dust evolution in protoplanetary disks considering electron heating"
   Period: April 26, 2017 – March 31, 2019
   Total amount: 1,900,000 JPY (Direct cost: 1,900,000 JPY)
   PI: Shoji Mori
2. JSPS Research Fellowship for Young Scientists (PD)
   Project title: "Formation process of Earth-like planets revealed by magnetohydrodynamic simulations of protoplanetary disks"
   Period: April 28, 2021 – March 31, 2024
   Total amount: 5,200,000 JPY (Direct cost: 4,000,000 JPY; Indirect cost: 1,200,000 JPY)
   PI: Shoji Mori
3. Grant-in-Aid for Early-Career Scientists, JSPS
   Project title: "Dust dynamics in protoplanetary disks explored through magnetohydrodynamic simulations"
   Period: April 1, 2022 – March 31, 2025
   Total amount: 4,030,000 JPY (Direct cost: 3,100,000 JPY; Indirect cost: 930,000 JPY)
   PI: Shoji Mori
4. 2021 Tohoku University–Tsinghua University Collaborative Research Fund Supported Projects
   Project title: "Protoplanetary disks and formation of terrestrial planets"
   Period: April 2021 – March 2023
   Total amount: 4,000,000 JPY
   PI: Kengo Tomida, Xuening Bai
   Co-I: Shoji Mori, Hidekazu Tanaka, Chris Ormel, Zhuo Chen

Publications:

1. **Shoji Mori**, Xuening Bai, Kengo Tomida, "Radiative Nonideal Magnetohydrodynamic Simulations of Inner Protoplanetary Disks: Temperature Structures, Asymmetric Winds, and

Episodic Surface Accretion", The Astrophysical Journal, 992:85, 2025.

2. **Shoji Mori**, Masahiro Ogihara, Masanobu Kunitomo, "Long-term Evolution of the Temperature Structure in Magnetized Protoplanetary Disks and Its Implication for the Dichotomy of Planetary Composition", Astronomy & Astrophysics, 697:A192, 2025.
3. Yu Wang, Chris Ormel, **Shoji Mori**, Xuening Bai, "Solving for the 2D Water Snowline with Hydrodynamic Simulations: Emergence of the Gas Outflow, Water Cycle, and Temperature Plateau", Astronomy & Astrophysics, 696:A38, 2025.
4. Shigehisa Takakuwa, Kazuya Saigo, Miyu Kido, …, **Shoji Mori**, et al., "Early Planet Formation in Embedded Disks (eDisk). XIV. Flared Dust Distribution and Viscous Accretion Heating of the Disk around R CrA IRS 7B-a", The Astrophysical Journal, 964(1):24, 2024.
5. **Shoji Mori**, Yuri Aikawa, Yoko Oya, Satoshi Yamamoto, Nami Sakai, "Synthetic Observations of the Infalling Rotating Envelope: Links between the Physical Structure and Observational Features", The Astrophysical Journal, 961(1):31, 2024.
6. Yuhito Shibaike, **Shoji Mori**, "Effective Dust Growth in Laminar Circumplanetary Discs with Magnetic Wind-Driven Accretion", Monthly Notices of the Royal Astronomical Society, 518(4):5444–5456, 2023.
7. Doris Arzoumanian, Sota Arakawa, Masato I. N. Kobayashi, …, **Shoji Mori**, et al., "Insights on the Sun Birth Environment in the Context of Star Cluster Formation in Hub-Filament Systems", The Astrophysical Journal Letters, 947(2):L29, 2023.
8. Katsushi Kondo, Satoshi Okuzumi, **Shoji Mori**, "The Roles of Dust Growth in the Temperature Evolution and Snow Line Migration in Magnetically Accreting Protoplanetary Disks", The Astrophysical Journal, 949(2):119, 2023.
9. Nagayoshi Ohashi, John J. Tobin, Jes K. Jørgensen, …, **Shoji Mori**, "Early Planet Formation in Embedded Disks (eDisk). I. Overview of the Program and First Results", The Astrophysical Journal, 951(1):8, 2023.
10. Yoshihide Yamato, Yuri Aikawa, Nagayoshi Ohashi, …, **Shoji Mori**, et al., "Early Planet Formation in Embedded Disks (eDisk). IV. The Ringed and Warped Structure of the Disk around the Class I Protostar L1489 IRS", The Astrophysical Journal, 951(1):11, 2023.
11. Miyu Kido, Shigehisa Takakuwa, Kazuya Saigo, …, **Shoji Mori**, et al., "Early Planet Formation in Embedded Disks (eDisk). VII. Keplerian Disk, Disk Substructure, and Accretion Streamers in the Class 0 Protostar IRAS 16544-1604 in CB 68", The Astrophysical Journal, 953(2):190, 2023.
12. Jinshi Sai, Hsi-Wei Yen, Nagayoshi Ohashi, …, **Shoji Mori**, et al., "Early Planet Formation in Embedded Disks (eDisk). V. Possible Annular Substructure in a Circumstellar Disk in the Ced110 IRS4 System", The Astrophysical Journal, 954(1):67, 2023.
13. Muneaki Imai, Yoko Oya, Brian Svoboda, …, **Shoji Mori**, et al., "Chemical and Physical Characterization of the Isolated Protostellar Source CB68: FAUST IV", The Astrophysical Journal, 934(1):70, 2022.
14. Satoshi Ohashi, Claudio Codella, Nami Sakai, …, **Shoji Mori**, et al., "Misaligned Rotations of the Envelope, Outflow, and Disks in the Multiple Protostellar System of VLA 1623–2417: FAUST III", The Astrophysical Journal, 927(1):54, 2022.
15. **Shoji Mori**, Satoshi Okuzumi, Masanobu Kunitomo, Xue-Ning Bai, "Evolution of the Water Snow Line in Magnetically Accreting Protoplanetary Disks", The Astrophysical Journal, 916(2):72, 2021.
16. Yuki Okoda, Yoko Oya, …, **Shoji Mori**, et al., "FAUST II. Discovery of a Secondary Outflow in IRAS 15398-3359: Variability in Outflow Direction during the Earliest Stage of Star Formation?", The Astrophysical Journal, 910(1):11, 2021.

17. E. Bianchi, C. J. Chandler, C. Ceccarelli, …, **Shoji Mori**, et al., "FAUST I. The Hot Corino at the Heart of the Prototypical Class I Protostar L1551 IRS5", Monthly Notices of the Royal Astronomical Society: Letters, 498(1):L87–L92, 2020.
18. **Shoji Mori**, Xue-Ning Bai, Satoshi Okuzumi, "Temperature Structure in the Inner Regions of Protoplanetary Disks: Inefficient Accretion Heating Controlled by Nonideal Magnetohydrodynamics", The Astrophysical Journal, 872(1):98, 2019.
19. Satoshi Okuzumi, **Shoji Mori**, Shu-ichiro Inutsuka, "The Generalized Nonlinear Ohm's Law: How a Strong Electric Field Influences Nonideal MHD Effects in Dusty Protoplanetary Disks", The Astrophysical Journal, 878(2):133, 2019.
20. **Shoji Mori**, Takayuki Muranushi, Satoshi Okuzumi, Shu-ichiro Inutsuka, "Electron Heating and Saturation of Self-regulating Magnetorotational Instability in Protoplanetary Disks", The Astrophysical Journal, 849(2):86, 2017.
21. **Shoji Mori** and Satoshi Okuzumi, "Electron Heating in the Magnetorotational Instability: Implications for Turbulence Strength in Outer Regions of Protoplanetary Disks", The Astrophysical Journal, 817(1):52, 2016.

Presentations:

- **Invited Talks**
  1. "Magnetized Protoplanetary Disks", Simulating Physics in Celestial Ecosystem, March 18–27, 2024, Japan.
  2. "Evolution of the Water Snowline in Magnetized Protoplanetary Disks", Building Blocks of Planets 2020, April 14–16, 2020, Online.
  3. "Evolution of the Water Snowline in Magnetized Protoplanetary Disks", Ringberg Workshop: Turbulence and Structure Formation in Protoplanetary Disks 2019 – Observation, Theory, and Experiments, November 25–28, 2019, NAOJ, Japan.
  4. "Numerical Simulations of Protoplanetary Disks to Elucidate Planet Formation Processes: Current Status and Future Prospects", CfCA Users Meeting 2022, January 26, 2023, Tokyo, Japan.
- **Contributed Talks**

  International
  1. "Ionization, Radiation, and MHD in Protoplanetary Disks", Extra Dimension in Planet Formation, October 2025, Izu, Japan.
  2. "Temperature Structure and Its Evolution of Magnetized Protoplanetary Disks", Exoplanets & Planet Formation Workshop 2025, September 2025, Yunnan, China.
  3. "Magnetic Circumplanetary Disks", Circumplanetary and Satellite System Workshop 2025, January 18, 2025, Kyoto, Japan.
  4. "Radiative Nonideal MHD Simulations of Inner Protoplanetary Disks", Magnetohydrodynamical Flows in Young Circumstellar Disks, October 2023.
  5. "Physical Interpretation of Line Observations of Envelope and Disk Systems: The Case of L1527", ALMA Workshop: Early Planet Formation in Embedded Disks, December 8–10, 2019, The University of Tokyo, Japan.
  6. "Wind-driven Accretion in Circumplanetary Disks", Planetary and Satellite System Workshop 2019, September 24–26, 2018, Tanegashima, Japan.
  7. "Inefficient Magnetic Accretion Heating in Protoplanetary Disks", Ringberg Workshop:

Turbulence and Structure Formation in Protoplanetary Disks, July 8–12, 2019, Ringberg Castle, Germany.

8. “Inefficient Magnetic Accretion Heating in Protoplanetary Disks”, From Stars to Planets II – Connecting Our Understanding of Star and Planet Formation, June 17–20, 2019, Chalmers University of Technology, Gothenburg, Sweden.
9. “Inefficient Heating by Wind-driven Accretion in Protoplanetary Disks”, Japanese–German Meeting on Exoplanets and Planet Formation, September 24–28, 2018, Edesheim, Germany.
10. “Suppression of MRI Turbulence by Electron Heating in Protoplanetary Disks”, 4th Session of the Sant Cugat Forum on Astrophysics, April 18–22, 2016, Sant Cugat, Spain.
11. “The Effect of Electron Heating on Magnetorotational Turbulence in PPDs: Self-Regulation and Reduced Turbulence Strength”, Protoplanetary Disk Dynamics and Planet Formation, September 29–October 2, 2015, JAMSTEC, Kanagawa, Japan.
12. “Electron Heating and Suppression of Magnetorotational Turbulence in Protoplanetary Disks”, 3rd DTA Symposium, June 1–4, 2015, National Astronomical Observatory of Japan, Tokyo, Japan.
13. Poster Presentations
14. “Temperature Structure of Magnetized Protoplanetary Disks”, Exoplanets & Planet Formation Workshop 2023, December 16–19, 2023, Beijing, China.
15. “Nonideal MHD Simulations to Understand the Temperature Structure of Protoplanetary Disks”, SPIDI23: The Inner Disk of Young Stars – Accretion, Ejection, and Planet Formation, May 2023.
16. “Radiative Nonideal MHD Simulations of the Inner Protoplanetary Disks”, Protostars and Planets VII, April 2023.

Domestic

17. “Global Nonideal MHD Simulations of Protoplanetary Disks: Episodic Surface Accretion”, The Astronomical Society of Japan Autumn Meeting 2025, September 11, 2023, Yamaguchi, Japan.
18. “Long-term Thermal Evolution of Magnetized Protoplanetary Disks with Mass Loss: Impact on Super-Earth Formation”, The Japanese Society for Planetary Sciences Autumn Meeting 2024, September 24–26, 2024, Fukuoka, Japan.
19. “Thermal Structure of Inner Magnetized Disks: Radiative Nonideal MHD Simulations”, The Astronomical Society of Japan Autumn Meeting 2023, September 22, 2023, Nagoya, Japan.
20. “Temperature Structure from Global Nonideal MHD Simulations of Protoplanetary Disks”, The Astronomical Society of Japan Spring Meeting 2022, Online, September 15, 2022.
21. “Magnetic Accretion and Snowline Migration in Protoplanetary Disks”, The Japanese Society for Planetary Sciences Autumn Meeting 2020, November 12, 2020, Online.
22. “Modeling Magnetic Circumplanetary Disks: Wind-driven Accretion Regions”, The Astronomical Society of Japan Autumn Meeting 2021, September 9, 2021, Online.