DINGSHAN DENG

Lunar and Planetary Laboratory, The University of Arizona
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EDUCATION

University of Arizona — **Tucson, USA**
Ph.D. in Planetary Sciences — *2021 - Present*
Supervisors: Prof. Ilaria Pascucci and Dr. Uma Gorti

Beijing Normal University — **Bejing, China**
B.S. in Astronomy — *2016 - 2020*

RESEARCH INTERESTS

- Formation and early evolution of planetary systems
- Physics and chemistry of gas and dust in protoplanetary and circumplanetary disks
- Synergy of multi-wavelength observations (e.g., ALMA, JWST) for tracing the origins of planetary materials

PUBLICATIONS

See full publication list on ADS
ORCID ID: 0000-0003-0777-7392
Total Publications: 24, with citations of 227 (Oct. 2025)

As First Author:

1) **Deng, D.**, Gorti, U., and Pascucci, I., and Ruaud, M. (in press), DiskMINT: Self-Consistent Thermochemical Disk Models with Radially Varying Gas and Dust – Application to the Massive, CO-Rich Disk of IM Lup. *Accepted to Publication in The Astrophysical Journal.*
2) **Deng, D.**, Vioque, M., Pascucci, I., et al., (2025), The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). III. Dust and Gas Disk Properties in the Lupus Star-forming Region, *The Astrophysical Journal*, vol. 989, no. 1. id. 3.
3) **Deng, D.**, Pascucci, I., Fernandes, Rachel, (2025), ysoisochrone: A Python package to estimate masses and ages for YSOs, *Journal of Open Source Software*, vol. 10, issue 106.
4) **Deng, D.**, Ruaud, M., Gorti, U., and Pascucci, I. (2023). DiskMINT: A Tool to Estimate Disk Masses with CO Isotopologues. *The Astrophysical Journal*, vol. 954, no. 2.
5) **Deng, D.**, Sun, Y., Wang, T., Wang, Y., and Jiang, B. (2022). Infrared Excess of a Large OB Star Sample, *The Astrophysical Journal*, vol. 935, no. 2.
6) **Deng, D.**, Sun, Y., Jian, M., Jiang, B., and Yuan, H. (2020). Intrinsic Color Indices of Early-type Dwarf Stars, *The Astronomical Journal* , vol. 159, no. 5.

As Significant Contributor:

7) Xie, C., Pascucci, I., **Deng, D.,** et al., (2025), JWST Captures a Sudden Stellar Outburst and Inner Disk Wall Destruction, The Astrophysical Journal, vol. 978, no. 1.
8) Pascucci, I., Skinner, B., **Deng, D.,** et al. (2023). Large Myr-old Disks Are Not Severely Depleted of Gas-phase CO or Carbon, *The Astrophysical Journal*, vol. 953, no. 2.
9) Huang, Q., Jiang, B., **Deng, D.**, Yu, B., and Zijlstra, A. (2023). Estimation of the Flux at 1450 MHz

of OB Stars for FAST and SKA, *The Astronomical Journal*, vol. 166, no. 1.
10) Yuan, H., **Deng, D.,** and Sun, Y. (2021). A star-based method for precise wavelength calibration of the Chinese Space Station Telescope (CSST) slitless spectroscopic survey, *Research in Astronomy and Astrophysics*, vol. 21, no. 3.
11) Sun, Y., **Deng, D.,** and Yuan, H. (2021). Precision of the Chinese Space Station Telescope (CSST) stellar radial velocities, *Research in Astronomy and Astrophysics*, vol. 21, no. 4.

Other Co-author Publications:
12) Miley, J, et al. including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). XII. Extreme Millimeter Variability Detected in a Class II Disk, *The Astrophysical Journal*, vol. 989, no. 1. id. 11.
13) Trapman, L., et al. including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). XI. Beam-corrected Gas Disk Sizes from Fitting 12CO Moment Zero Maps, *The Astrophysical Journal*, vol. 989, no. 1. id. 10.
14) Vioque, M, et al. including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). X. Dust Substructures, Disk Geometries, and Dust-disk Radii, *The Astrophysical Journal*, vol. 989, no. 1. id. 9.
15) Anania, R, et al. including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). VIII. The Impact of External Photoevaporation on Disk Masses and Radii in Upper Scorpius, *The Astrophysical Journal*, vol. 989, no. 1. id. 8.
16) Tabone, B, et al. including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). VII. Testing Accretion Mechanisms from Disk Population Synthesis, *The Astrophysical Journal*, vol. 989, no. 1. id. 7.
17) Kurtovic, N, et al. including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). VI. Comparison of Dust Evolution Models to AGE-PRO Observations, *The Astrophysical Journal*, vol. 989, no. 1. id. 6.
18) Trapman, L., et al. including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). V. Protoplanetary Gas Disk Masses, *The Astrophysical Journal*, vol. 989, no. 1. id. 5.
19) Agurto-Gangas, C., et al., including **Deng, D.** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). IV. Dust and Gas Disk Properties in the Upper Scorpius Star-forming Region, *The Astrophysical Journal*, vol. 989, no. 1. id. 4.
20) Ruiz-Rodriguez, D. A., including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). II. Dust and Gas Disk Properties in the Ophiuchus Star-forming Region, *The Astrophysical Journal*, vol. 989, no. 1. id. 2.
21) Zhang, K., et al. including **Deng, D.,** (2025). The ALMA Survey of Gas Evolution of PROtoplanetary Disks (AGE-PRO). I. Program Overview and Summary of First Results, *The Astrophysical Journal*, vol. 989, no. 1. id. 1.
22) Sierra, A., et al. including **Deng, D.,** (2024). Hints of Planet Formation Signatures in a Large-cavity Disk Studied in the AGE-PRO ALMA Large Program, *The Astrophysical Journal*, vol. 974, no. 1.
23) Sellek, A. D., et al. including **Deng, D.,** (2024). Modeling JWST MIRI-MRS Observations of T Cha: Mid-IR Noble Gas Emission Tracing a Dense Disk Wind, *The Astronomical Journal*, vol. 167, no. 5.
24) Bajaj, N. S., et al. including **Deng, D.**, (2024). JWST MIRI MRS Observations of T Cha: Discovery of a Spatially Resolved Disk Wind, *The Astronomical Journal*, vol. 167, no. 3.

PUBLISHED SOFTWARE

Software Homepage https://github.com/DingshanDeng

▶ `DiskMINT`: Disk Model for INdividual Targets
An open-source Python-Fortran code to build self-consistent thermochemical disk models.
GitHub repository: https://github.com/DingshanDeng/DiskMINT

▶ `ysoisochrone`: an open-source Python package that handles the isochrones for young stellar objects.
GitHub repository: https://github.com/DingshanDeng/ysoisochrone

OBSERVING PROPOSALS

ALMA Cycle 12 Large Program (DMOST)	2025.1.00324.L (104.5 h)	co-I
ALMA Cycle 8 Large Program (AGE-PRO)	2021.1.00128.L (103.4 h)	co-I & delegee
ALMA Cycle 12	2025.1.00921.S (15.2 h)	co-I
ALMA Cycle 12	2025.1.00246.S (26.0 h)	co-I
ALMA Cycle 11	2024.1.01402.S (36.5 h)	co-I
ALMA Cycle 10	2023.1.01100.S (10.2 h)	co-I
JWST Cycle 4	GO 8328 (6.6 h)	co-I

PRESENTATIONS

- Oral Presentation at the *The Solar System in Context*, Tucson, Arizona, USA. *2025*
- Poster Presentation at the *Origins of Solar Systems Gordon Research Conference*, South Hadley, Massachusetts, USA. *2025*
- Oral Presentations at the *Origins Seminar*, Tucson, Arizona, USA. *2025*
  Online recordings:
  - *CO line emission supports large protoplanetary disk masses w/o much CO depletion*
    https://www.youtube.com/watch?v=qxE-9GC9w0o
  - *Introducing ysoisochrone: A Python package that handles the isochrones for young stellar objects*
    https://www.youtube.com/watch?v=0ydPsfd9QDM&t=21s
- Oral Presentation at the *From Star to Planet Formation*, Como, Italy. *2024*
- Invited Talk at the *ESO Star and Planet Formation Seminar*, Munich, Germany. *2023*
- Oral Presentation at the *DPS-EPSC 2023*, San Antonio, Texas, USA. *2023*
- Oral Presentation at the *Alien Earth All-Hands Meeting*, Tucson, Arizona, USA. *2023*
- Poster Presentation at the *Protostars and Planets VII*, Kyoto, Japan. *2023*
- Oral Presentation and Visiting Student at *Dharma Planet Survey Project* at University of Florida, Gainesville, Florida, USA. *2019*
- Oral Presentation at the *Star Week*, Shijiazhuang, China. *2019*
- Poster Presentation at the *Interstellar Physics and Chemistry*, Kunming, China. *2018*
- Poster Presentation at the *Stars, Supernovas, and Interstellar Dust*, Beijing, China. *2018*

SERVICES AND OUTREACH

- Origins Seminars Organizer *2024-present*
  Website: https://alienearths.space/origins-seminar/
- Lunar and Planetary Laboratory Conference Organizer *2023-present*
- Referee for AAS Journals. *2023-present*
- Arizona Pima County K-12 Teacher's workshop on radio waves Organizer *2025*
- The Art of Planetary Sciences Organizer *2024*

- Teaching assistance in the online class *Alien Earths* at the University of Arizona. *2024*
  Instructor: Prof. Jessica Barnes.
- Undergraduate student mentor at Beijing Normal University. *2020-2023*
  Mentee Huang, Q., with one first-author paper published in *The Astronomical Journal*.
- Participation in the production of a Massive Open Online Course on *Numerical Methods* at Beijing Normal University. *2018*
  Instructor: Prof. Li Chen.
- Volunteer at Beijing Astronomy Planetarium. *2017-2019*

HONORS

- *Galileo Circle* Scholarship. The University of Arizona. *2024*
- Outstanding Undergraduate. Beijing Normal University. *2017, 2018, 2019*
- Excellent Research Project for Undergraduates. Beijing Normal University. *2019*
- *Jingshi* First Prize Scholarship for Excellent Academic Performance. Beijing Normal University. *2018*
- *Kuangqiao* Scholarship for Excellent Academic Performance. Beijing Normal University. *2017*

TECHNICAL SKILLS

Programming: Python, FORTRAN, C, MATLAB, IDL, HPC/Prallel Computing
Observational Data Analysis: ALMA radio interferometry (calibration, imaging, line modeling), data pipeline automation
Software: CASA, CARTA, TOPCAT, LATEX, EXCEL
Language: English, Chinese