

# Curriculum Vitae: Chong-Chong He

1113 PSC Bldg. 415, University of Maryland, Department of Astronomy College Park, MD 20742-0001

Email: che1234 @ umd.edu    Citizenship: China

<https://www.astro.umd.edu/~chongchong/>

## Education

---

|   |              |
|---|--------------|
| <b>Ph.D., Astronomy;</b> University of Maryland   | 2018 - 2023  |
| Thesis (proposed): <i>Multiscale Radiation-MHD Simulations of Compact Star Clusters</i> | (expected)   |
| <b>M.S., Astronomy;</b> University of Maryland  | 2016 - 2018  |
| Thesis: <i>Simulating Star Clusters Across Cosmic Time</i>                              |              |
| <b>Visiting Honors Student Program;</b> Georgia Institute of Technology                 | 2015, Spring |
| <b>B.S., Physics, WITH HIGHEST HONOR;</b> Jilin University                              | 2012 - 2016  |
| Upper Division GPA: 3.92/4    Cumulative GPA 3.91/4                                     |              |

## Honors & Awards

---

|   |             |
|---|-------------|
| <b>Future Investigators in NASA Earth and Space Science and Technology (FINESST)</b>          | 2021 - 2024 |
| <b>Ann G. Wylie Dissertation Fellowship</b> (declined)  | 2021        |
| <b>Dean's Honored Graduates,</b> Jilin University   | 2016        |
| The highest honor awarded to graduating seniors in the college                                |             |
| <b>China Youth Science and Technology Innovation Award,</b> P.R. China                        | 2016        |
| <b>Tang-Ao Qing Supreme Award for Excellence in Research &amp; Practice,</b> Jilin University | 2016        |
| <b>National Scholarship,</b> P.R. China   | 2015        |
| <b>Scholarship for Overseas Study,</b> China Scholarship Council                              | 2014        |

## Selected Talks

---

|   |         |
|---|---------|
| Aspen Winter Conference, Aspen, CO. "Dense Star Clusters from Multi-scale Simulations of Magneto-turbulent Molecular Clouds"  | 2022/3  |
| 237th AAS Meeting   American Astronomical Society, "Photoionization Feedback and the Escape of LyC Photons"   | 2021/1  |
| Invited talk, the Anton Pannekoek Insitute for Astronomy, University of Amsterdam, "Simulating Star Formation: Photoionization Feedback and the Initial Mass Function".                         | 2020/11 |
| Invited talk, the Emmy Noether Research Group on Massive Star Formation, University of Tübingen, "Simulating Star Clusters: Photoionization Feedback and Fragmentation of Proto-stellar Disks". | 2020/11 |
| Invited talk, physics seminar of the Tang-Ao Qing program, Jilin University, "Anisotropy of X-Ray Bursts from Neutron Stars with Concave Accretion Disks".                                      | 2015/07 |

## Teaching/Tutoring Experience

---

**Undergraduate Research Tutor;** University of Maryland

2021

- Tutoring an undergraduate on research

**Graduate Teaching Assistant;** University of Maryland

2016 - 2021

- Responsibilities include leading classroom discussions and labs, preparing homework and exam solutions, grading, and holding office hours to provide additional guidance to students.
- Courses taught include *Introduction to Astronomy*, *Galaxies*, *Cosmology*, *Origin of the Universe*, *Stars and Stellar Systems*, *Solar System Astronomy*, and *Life in the Universe*.

## Skills

---

Programming Languages & Softwares

- Python, Julia, LaTeX; advanced
- C, Fortran, Mathematica, MATLAB; proficient
- C++, HTML/CSS, JavaScript; basic

High-Performance Computing

- Experienced in MPI Parallel Programming

Data Science

- Basic knowledge of Machine Learning, including Deep Learning and Neural Networks (**Coursera certification**)

## Professional Services

---

2020 - **Referee:** MNRAS

2018 - **Member:** American Astronomical Society

## Selected Press Coverage

---

- Amsterdam Science (2020, Sept). “Cosmic Flashlights in the Early Galaxies” Retrieved 2020, Oct 6, from [https://amsterdamscience.org/wp-content/uploads/ScienceAmsterdamMagazine\\_2020-digitaal.pdf](https://amsterdamscience.org/wp-content/uploads/ScienceAmsterdamMagazine_2020-digitaal.pdf) (page 20)

## Selected Outreach

---

- **2020** Produced animations for “**The Great Conjunction 2020**”, an outreach program by the Astrophysics Group at the University of Exeter. Video link: <https://youtu.be/dbVp19UYzHU?t=128> and <https://youtu.be/mxYJpQONSII?t=293> (retrieved 2020-12-8). Source code: <https://github.com/chongchonghe/Python-solar-system>
- **2018, 2020** Lecture Assistant, GRAD-MAP Python Bootcamp, University of Maryland

# List of Publications: Chong-Chong He

## First-author refereed/under-review publications

---

- He2022a
- He2022b
- **C.-C. He**, 2021, “A Fast and Accurate Analytic Method of Calculating Galaxy Two-point Correlation Functions”, **The Astrophysical Journal**, **921**, 59
- **C.-C. He**, M. Ricotti, & S. Geen, 2020, “Simulating star clusters across cosmic time - II. Escape fraction of ionizing photons from molecular clouds”, **Monthly Notices of the Royal Astronomical Society**, **492**, 4858.
- **C.-C. He**, M. Ricotti, & S. Geen, 2019, “Simulating star clusters across cosmic time - I. Initial mass function, star formation rates, and efficiencies”, **Monthly Notices of the Royal Astronomical Society**, **489**, 1880.
- **C.-C. He** & L. Keek, 2016, “Anisotropy of X-Ray Bursts from Neutron Stars with Concave Accretion Disks”, **The Astrophysical Journal**, **819**, 47.

## Papers with significant contributions:

---

- Hix2022
- D. K. Galloway, Z. Johnston, A. J. Goodwin, & **C.-C. He**, 2022, “Robust inference of neutron-star parameters from thermonuclear burst observations”, Accepted by ApJS ([arXiv:2210.03598](#)).

## Conference Proceedings/Abstracts

---

- **C. He**, 2021, “Destructing Molecular Clouds with Photoionization Feedback and the Escape of Ionizing Photons”, **American Astronomical Society Meeting Abstracts**, **53**, 329.03.

## Paper in Preparation

---

Authors with \*\* are undergraduates I mentored.

- **C.-C. He**, M. Ricotti, & C. M. Miller, “Dynamics and mass functions of prestellar core fragments”
- **C.-C. He**, M. Ricotti, & C. M. Miller, “Simulating star clusters across cosmic time - III. Collapse of prestellar cores and formation of protostellar disks”
- R. Hix\*\*, **C.-C. He**, & M. Ricotti, “Simulating star clusters across cosmic time - IV. Impact of magnetic fields on the initial mass function”
- **C.-C. He**, & M. Ricotti, “Mock Spectra of Proto-globular Clusters at  $z > 6$  and observations of ionizing-photon escape fraction”

## Selected Essays

---

- 2020 “Simulating a real solar system with 70 lines of Python code”, [medium.com](#)