

Curriculum Vitae: Chong-Chong He

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Education

Ph.D., Astronomy; University of Maryland	2018 - 5/2023
Thesis: <i>Multiscale Radiation-MHD Simulations of Compact Star Clusters</i> . Advisor: Massimo Ricotti	(expected)
M.S., Astronomy; University of Maryland	2016 - 2018
Thesis: <i>Simulating Star Clusters Across Cosmic Time</i> . Advisor: Massimo Ricotti	
Visiting Honors Student Program; Georgia Institute of Technology	Spring 2015
B.S., Physics, WITH HIGHEST HONOR; Jilin University	2012 - 2016
Upper Division GPA: 3.92/4 Cumulative GPA 3.91/4	

Honors & Awards

Future Investigators in NASA Earth and Space Science and Technology (FINESST)	2021 - 2024
Ann G. Wylie Dissertation Fellowship (declined)	2021
\$15,000 stipend and a tuition to support outstanding doctoral students for their dissertation.	
Dean's Honored Graduates, Jilin University	2016
The highest honor awarded to graduating seniors in the college	
China Youth Science and Technology Innovation Award, P.R. China	2016
Tang-Ao Qing Supreme Award for Excellence in Research & Practice, Jilin University	2016
National Scholarship, P.R. China	2015
Scholarship for Overseas Study, China Scholarship Council	2014

Selected Talks

Star Formation/ISM Seminar, Princeton University	2022/12
Invited talk, the Center for Relativistic Astrophysics Seminar, Georgia Tech	2022/11
Aspen Winter Conference, Aspen Center for Physics	2022/3
237th AAS Meeting American Astronomical Society	2021/1
Invited talk, the Anton Pannekoek Insitute for Astronomy, University of Amsterdam	2020/11
Invited talk, the Emmy Noether Research Group on Massive Star Formation, University of Tübingen	2020/11

Teaching/Mentoring Experience

Undergraduate Research Tutor; University of Maryland	2021 -
• Mentoring an undergraduate on academic research	

Graduate Teaching Assistant; University of Maryland

2016 - 2021

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

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

- 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 (page 20)

Selected Outreach

- **Computational Science Blog**, a blogging site I created where I write articles about computational astrophysics and machine learning for the general public with college or high school background.
- **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

Check ADS for a [full list of publications](#) or a [list of refereed/under-review publications](#)

First-author refereed/under-review publications

- **C.-C. He** & M. Ricotti, 2022, “Massive Prestellar Cores in Radiation-magneto-turbulent Simulations of Molecular Clouds”, submitted to MNRAS, arXiv e-prints, [arXiv:2210.11629](#).
- **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

- D. K. Galloway, Z. Johnston, A. J. Goodwin, & **C.-C. He**, 2022, “Robust inference of neutron-star parameters from thermonuclear burst observations”, ApJS in press ([arXiv:2210.03598](#)).
> *I wrote the code DiskAnisotropy which is a core module of the code presented in this paper.*

Papers in preparation

Authors with * are students I mentored/co-mentored.

- **C.-C. He** & M. Ricotti, 2022 *in prep.*, “Magnetic Braking Fails to Work: Formation of Large Circumstellar Disks in Magnetically Critical Cores”
- R. Hix*, **C.-C. He**, & M. Ricotti, 2022 *in prep.*, “Two Modes of Star Formation in Strongly Magnetized Molecular Clouds”
- **C.-C. He** & M. Ricotti, 2023 *in prep.*, “Mock JWST Spectra of Proto-globular Clusters at $z > 6$ and Implications on LyC Escape Fraction”

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.

Selected Essays

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