Chong-Chong He

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Education

2018 - 05/2023	Ph.D. (Astronomy), University of Maryland College Park *Advisor: Massimo Ricotti* *Thesis: Multiscale Radiation-MHD Simulations of Compact Star Clusters*
2016 - 2018	M.S. (Astronomy), University of Maryland College Park
Spring 2015	Non-degree Visiting Student at Georgia Institute of Technology
2012 - 2016	B.S. (Physics) WITH HIGHEST HONOR, Jilin University *GPA: 3.92/4*

Honors & Awards

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

Selected Talks

Star Formation/ISM Seminar, Princeton University	2022/12
Invited, 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
Invited, the Anton Pannekoek Insitute for Astronomy, University of Amsterdam	2020
Invited, the Emmy Noether Research Group on Massive Star Formation, University of Tübingen	2020

Teaching/Mentoring Experience

Undergraduate Research Mentor 2021 – 2022

Graduate Teaching Assistant, University of Maryland 2016 – 2021

- Check my teaching portfolio
- 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	Python, Julia, LaTeX (advanced); C, Fortran, Mathematica, MATLAB (proficient); C++, HTML/CSS, JavaScript (basic)
Data Science	Knowledge of Machine Learning, including Deep Learning and Neural Networks (Coursera certification)

Professional Services

Referee: MNRAS 2020 -
Member: American Astronomical Society 2018 -

Selected Press Coverage

2020 Amsterdam Science, "Cosmic Flashlights in the Early Galaxies", Retrieved on 2020 Oct 6 from this link (page 20).

Selected Outreach

Computational Science Blog 2022 –
[Link] A blogging site I created where I write articles on computational astrophysics and machine learning for the general public with college or high school background

The Great Conjunction 2020 2020 –
[Link] Produced animations for the outreach program by the Astrophysics Group at the University of Exeter. Video links: Video1 and Video2 (retrieved 2020-12-8). Source code.

GRAD-MAP Python Bootcamp 2018 – 2020
[Link] Lecture Assistant for the GRAD-MAP Python Bootcamp, University of Maryland

List of Publications: Chong-Chong He

Check NASA/ADS for a list of full publications or refereed/under-review publications

First-author Refereed/under-review Publications

Including first-authored by students I mentored/co-mentored.

[1]**C.-C. He** and M. Ricotti, "Massive Prestellar Cores in Radiation-magneto-turbulent Simulations of Molecular Clouds", submitted to MNRAS, arXiv:2210.11629 (2022).

[2]**R. Hix**, **C.-C. He**, and M. Ricotti, "Bimodal Star Formation in Simulations of Strongly Magnetized Giant Molecular Clouds", submitted to MNRAS, arXiv:2212.04411 (2022).

[3]**C.-C. He**, "A Fast and Accurate Analytic Method of Calculating Galaxy Two-point Correlation Functions", ApJ **921**, 59, 59 (2021).

[4]**C.-C. He**, M. Ricotti, and S. Geen, "Simulating star clusters across cosmic time - ii. escape fraction of ionizing photons from molecular clouds", MNRAS **492**, 4858–4873 (2020).

[5]**C.-C. He**, M. Ricotti, and S. Geen, "Simulating star clusters across cosmic time - i. initial mass function, star formation rates, and efficiencies", MNRAS **489**, 1880–1898 (2019).

[6]**C.-C. He** and L. Keek, "Anisotropy of X-Ray Bursts from Neutron Stars with Concave Accretion Disks", ApJ **819**, 47, 47 (2016).

Papers with Significant Contributions

[1]D. K. Galloway, Z. Johnston, A. Goodwin, and **C.-C. He**, "Robust Inference of Neutron-star Parameters from Thermonuclear Burst Observations", ApJS **263**, 30, 30 (2022).

Papers in Preparation

[1]**C.-C. He** and M. Ricotti, "Mock spectra of proto-globular clusters at $z > 6$ and its implications on cluster density and escape of ionizing photons", *in prep.* (2023).

[2]**C.-C. He** and M. Ricotti, "Magnetic braking fails to work: formation of large circumstellar disks in magnetically critical cores", *in prep.* (2022).

Selected Conference Proceedings/Abstracts

[1]**C. He**, "Destructing Molecular Clouds with Photoionization Feedback and the Escape of Ionizing Photons", in American astronomical society meeting abstracts, Vol. 53, American Astronomical Society Meeting Abstracts (Jan. 2021), p. 329.03.

Selected Essays

[1]"Simulating a real solar system with 70 lines of Python code", medium.com (2020).

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