

# Chong-Chong He

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## EDUCATION

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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, GPA: 3.92/4) WITH HIGHEST HONOR, Jilin University, China

## HONORS & AWARDS

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Future Investigators in NASA Earth and Space Science and Technology (FINESST)	2021 – 2024
Jacob K. Goldhaber Travel Grant, University of Maryland	2023
Ann G. Wylie Dissertation Fellowship, University of Maryland (declined)	2021
Dean's Honored Graduates, Jilin University	2016
<i>The highest honor awarded to graduating seniors in the college</i>	
China Youth Science and Technology Innovation Award, the Communist Youth League of China	2016
<i>The highest award for youth science and technology innovation in China, awarded to 20 college students in 2016</i>	
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

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Dissertation Talk, 241st AAS Meeting   American Astronomical Society	2023/1
<b>Invited</b> , Star Formation/ISM Seminar   Princeton University	2022/12
<b>Invited</b> , the Center for Relativistic Astrophysics Seminar   Georgia Tech	2022/11
Aspen Winter Conference   Aspen Center for Physics	2022/3
iPoster presentation, 237th AAS Meeting   American Astronomical Society	2021
<b>Invited</b> , the Anton Pannekoek Insitute for Astronomy   University of Amsterdam	2020
<b>Invited</b> , the Emmy Noether Research Group on Massive Star Formation   University of Tübingen	2020

## TEACHING/MENTORING EXPERIENCE

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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

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Professional Programming	Experienced in MPI Parallel Programming, Hydrodynamics Simulations and Data Analysis 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 ( <a href="#">Coursera certification</a> )

## PROFESSIONAL SERVICES

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

## SELECTED PRESS COVERAGE

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2020 Amsterdam Science, “Cosmic Flashlights in the Early Galaxies”, Retrieved on Oct 6, 2020 from [this link](#) (page 20).

## SELECTED OUTREACH

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Computational Science Blog	2022 –
<a href="#">[Link]</a> <i>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</i>	
The Great Conjunction 2020	2020
<a href="#">[Link]</a> <i>Produced animations for the outreach program by the Astrophysics Group at the University of Exeter. Video links: <a href="#">Video1</a> and <a href="#">Video2</a> (retrieved 2020-12-8). <a href="#">Source code</a>.</i>	
GRAD-MAP Python Bootcamp	2018 – 2020
<a href="#">[Link]</a> <i>Lecture Assistant for the GRAD-MAP Python Bootcamp, University of Maryland</i>	

# List of Publications: Chong-Chong He

Check NASA/ADS for a list of [full publications](#) or [refereed/under-review publications](#), or check my [Google Scholar profile](#) (with citation count).

## FIRST-AUTHOR REFEREED/UNDER-REVIEW PUBLICATIONS (121 CITATIONS)

Including first-author papers by students I (co-)mentored.

- <sup>1</sup>**C.-C. He** and M. Ricotti, “Magnetic braking fails to work: formation of large keplerian disks in magnetically critical giant molecular clouds”, submitted to MNRAS (2023).
- <sup>2</sup>**C.-C. He** and M. Ricotti, “Massive pre-stellar cores in radiation-magneto-turbulent simulations of molecular clouds”, [MNRAS 522, 5374–5392 \(2023\)](#).
- <sup>3</sup>**R. Hix, C.-C. He**, and M. Ricotti, “Bimodal star formation in simulations of strongly magnetized giant molecular clouds”, [MNRAS 522, 6203–6216 \(2023\)](#).
- <sup>4</sup>**C.-C. He**, “A Fast and Accurate Analytic Method of Calculating Galaxy Two-point Correlation Functions”, [ApJ 921, 59, 59 \(2021\)](#).
- <sup>5</sup>**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 \(2020\)](#).
- <sup>6</sup>**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 \(2019\)](#).
- <sup>7</sup>**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

- <sup>1</sup>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 \(2022\)](#).

Explanation of my roles:

- <sup>1</sup>I wrote the code `DiskAnisotropy` which is a core module of the code presented in this paper.

## PAPERS IN PREPARATION

- <sup>1</sup>**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).

## SELECTED CONFERENCE PROCEEDINGS/ABSTRACTS

- <sup>1</sup>**C. He**, “Destructing Molecular Clouds with Photoionization Feedback and the Escape of Ionizing Photons”, in [American Astronomical Society Meeting Abstracts](#), Vol. 53 (Jan. 2021), p. 329.03.

## SELECTED ESSAYS

- <sup>1</sup>“Simulating a real solar system with 70 lines of Python code”, [medium.com](#) (2020).