Curriculum Vitae: Chong-Chong He

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Education

Ph.D., Astronomy; University of Maryland 2018 - 2023 (expected)
Thesis (proposed): *Multiscale Radiation-MHD Simulations of Compact Star Clusters*

M.S., Astronomy; University of Maryland 2016 - 2018
Thesis: *Simulating Star Clusters Across Cosmic Time*

Visiting Honors Student Program; Georgia Institute of Technology 2015, Spring

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

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

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 (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/dbVpl9UYzHU?t=128 and https://youtu.be/mxYJpQONSlI?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

Get a full list of my publications on **the SAO/NASA Astrophysics Data System**.

First-author refereed/under-review publications

- **C.-C. He** & M. Ricotti, 2022, "Massive Prestellar Cores in Radiation-magneto-turbulent Simulations of Molecular Clouds", 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", Accepted by ApJS (**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.

- **C.-C. He** & M. Ricotti, 2022 *in prep.*, "Magnetic Braking Fails to Work: Formation of Turbulent Circumstellar Disks from 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, "Mock Spectra of Proto-globular Clusters at z > 6 and Observations of Ionizing-photon 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