DONG ZHANG – Curriculum Vitae

Department of Astronomy
The University of Michigan
1085 S University Ave
Ann Arbor, MI 48109

Cell: (614) 397-5173
Office: (734) 764-7853
dongzhz@umich.edu
http://people.virginia.edu/~dz7g/

EDUCATION

2009–2015: **Department of Astronomy, The Ohio State University**
Ph.D., Astronomy, July, 2015
PhD Dissertation: *On the Theory of Galactic Winds*
advisor: Todd A. Thompson

2006–2009: **Department of Astronomy, Nanjing University**
M.Sc., Astrophysics, June, 2009
Master Thesis: *Hyperaccreting Disks and The Central Engine of Gamma-Ray Bursts*
advisor: Zi-Gao Dai

2002–2006: **Department of Astronomy, Nanjing University**
B.S. in Astronomy, June, 2006
Highest GPA (1/43), core courses: 95/100, overall: 91/100

RESEARCH INTERESTS

Theoretical and computational astrophysics in general, with an emphasis on:
stellar feedback and AGN feedback in galaxy formation and evolution,
theory of galactic winds, magnetohydrodynamics and radiation hydrodynamics,
gamma-ray bursts, accretion disks and dark matter structure formation and annihilation

EMPLOYMENT

2018(Sept)- :	Postdoctoral Research Fellow, University of Michigan
2015-2018(August):	Postdoctoral Research Associate, The University of Virginia
2012-2014:	Graduate Research Associate, Department of Astronomy, The Ohio State University
2010-2012,2014:	Graduate Teaching Associate, The Ohio State University
2006-2009	Graduate Research Associate, Department of Astronomy, Nanjing University

AWARDS and FELLOWSHIPS

2018:	Kavli Institute for the Physics and Mathematics of the Universe Fellowship (declined)
2016:	Best Oral Presentation in the Postdoctoral Research Symposium at University of Virginia
2014-2015:	Distinguished University Fellowship, The Ohio State University
2009-2010:	Distinguished University Fellowship, The Ohio State University
2009:	Grand Prize of Nature Scholarship for the Top Graduate Student, Nanjing University
2006:	Undergraduate Degree Thesis Excellent Award, Nanjing University
2004:	Chen-Ning Yang Scholarship Award, Nanjing University
2003, 2005:	People's Scholarship Award, Nanjing University

PROFESSIONAL EXPERIENCE AND SERVICE

- "Supernova Feedback: Interaction between Supernova Remnants/Coherent Hot Galactic Winds and the Surrounding Turbulent Medium", **PI**, XSEDE, 23,000 Node Hours (1.47 million CPU-hours), 2018-2019

- "Momentum Coupling Between the Supernova-Driven Galactic Wind and the Turbulent Interstellar Medium", **PI**, XSEDE, 181,201 CPU-hours, 2016-2017
- "Radiation MHD Simulations of Star Formation Feedback and Supermassive Black Hole Accretion", *collaborator*, XSEDE, 4,007,150 CPU-hours, 2016-2017
- Referee for The Astrophysical Journal, Monthly Notices of the Royal Astronomical Society, Research in Astronomy and Astrophysics, Galaxies, 2015-present

PUBLICATION LIST

REFEREED PUBLICATIONS:
summary: **15** published papers, **13** first-author papers

15. *A Review of the Theory of Galactic Winds Driven by Stellar Feedback*
    Zhang, D., 2018, Galaxies, 6, 114 (arXiv: 1811.00558)
14. *Numerical Simulations of Supernova Remnants in Turbulent Molecular Clouds*
    Zhang, D., and Chevalier, R. A., 2019, MNRAS, 482, 1602 (arXiv: 1807.06603)
13. *Dusty Cloud Acceleration by Radiation Pressure in Rapidly Star-Forming Galaxies*
    Zhang, D., Davis, S. W., Jiang, Y. F., and Stone, J. M., 2018, ApJ, 854, 110 (arXiv: 1708.02946)
12. *Radiation Hydrodynamic Simulations of Dust-Driven Winds*
    Zhang, D., and Davis, S. W., 2017, ApJ, 839, 54 (arXiv: 1612.00022)
11. *Entrainment in Trouble: Cool Cloud Acceleration and Destruction in Hot Supernova-Driven Galactic Wind*
    Zhang, D., Thompson, T. A., Quataert, E., and Murray, N., 2017, MNRAS, 468, 4801 (arXiv: 1507.01951)
10. *An Origin for Multi-Phase Gas in Galactic Winds and Halos*
    Thompson, T. A., Quataert, E., **Zhang, D.**, and Weinberg, D., 2016, MNRAS, 455, 1830 (arXiv: 1507.04362)
9. *Hot Galactic Winds Constrained by the X-Ray Luminosities of Galaxies*
    Zhang, D., Thompson, T. A., Murray, N., and Quataert, E., 2014, ApJ, 784, 93 (arXiv: 1310.1099)
8. *Radiation Pressure Driven Galactic Winds from Self-Gravitating Disks*
    Zhang, D., and Thompson, T. A., 2012, MNRAS, 424, 1170-1178 (arXiv: 1005.4691)
7. *The Very Massive and Hot LMC Star VFTS 682: Progenitor of a Future Dark Gamma-Ray Burst?*
    Zhang, D., and Stanek, K. Z., 2012, Acta Astronomica, 62, 23-32 (arXiv: 1112.0016)
6. *Impact of Primordial Ultracompact Minihaloes on the Intergalactic Medium and First Structure Formation*
    Zhang, D., 2011, MNRAS, 418, 1850-1872 (arXiv: 1011.1935)
5. *Black Hole Mass Estimates Based on C IV are Consistent with Those Based on the Balmer Lines*
    Assef, R. J., et al. (including **Zhang, D.**), 2011, ApJ, 742, 93-118 (arXiv:1009.1145)
4. *Hyperaccreting Disks around Magnetars for Gamma-ray Bursts: Effects of Strong Magnetic Fields*
    Zhang, D., and Dai, Z. G., 2010, ApJ, 718, 841-866 (arXiv: 0911.5528)

3. *Hyperaccreting Neutron Star Disks and Neutrino Annihilation*
   Zhang, D., and Dai, Z. G., 2009, ApJ, 703, 461- 478, (arXiv: 0901.0431)
2. *Self-similar structure of magnetized advection dominated accretion flows and convection dominated accretion flows*
   Zhang, D., and Dai, Z. G., 2008, MNRAS, 388, 1409-1418, (arXiv: 0805.3254)
1. *Hyperaccretion disks around Neutron Stars*
   Zhang, D., and Dai, Z. G., 2008, ApJ, 683, 329-345, (arXiv: 0712.0423)

IN PREPARATION:

1. *Interaction between Hot Galactic Winds and the Interstellar Medium*
   Zhang, D., Davis, S. W., and Thompson, T. A., 2018, *in prep.*

BOOKS

- *On the Theory of Galactic Winds Driven by Supernovae and Radiation*
  Zhang, D., 2016, Lambert Academic Publishing, ISBN: 9783330016491
- *Hyperaccreting Neutron-Star Disks, Magnetic Disks and Gamma-Ray Bursts: Structure, Neutrino Emission, Annihilation, Global Field*
  Zhang, D., 2010, Lambert Academic Publishing, ISBN-10: 3838332199, SBN-13: 978-3838332192 (arXiv: 0906.0842)

CONFERENCE PROCEEDINGS

2. *Hyperaccreting Disks around Neutrons Stars and Magnetars for GRBs: Neutrino Annihilation and Strong Magnetic Fields*
   Zhang, D., and Dai, Z. G., in Proceedings of *Deciphering the Ancient Universe with GRBs*, April, 19-23, 2010, Kyoto, Japan, Edited by N. Kawai and S. Nagataki, AIP Conf. Proc. 1279, 271-274 (arXiv: 1009.1634)
1. *Hyperaccreting Neutron Stars and Neutrino-cooled Disks*
   Zhang, D., and Dai, Z. G., in Proceedings of *the International GRB Conference*, June 23-27, 2008, Nanjing, China, Edited by Y.-F. Huang , Z.-G. Dai and B. Zhang, AIP Conf. Proc. 1065, 294-297

INVITED TALKS

25. Hot Universe Baryon Surveyor Workshop, Shanghai, China, October, 2018
24. Extremism Journal Club, University of Michigan, MI, September, 2018
23. Seminar talk, Shanghai Jiao Tong University, Shanghai, China, May, 2018
22. Seminar talk, Shanghai Observatory, Shanghai, China, May, 2018
21. Seminar talk, Huazhong University of Science and Technology, Hubei, China, May, 2018
20. Workshop Talk, Nanjing University, Jiangsu, China, May, 2018
19. Seminar Talk, James Madison University, VA, February, 2018
18. Seminar Talk, Los Alamos National Lab, NM, December, 2017
17. Institute for Theory and Computation, Harvard University, MA, Dec, 2017
16. Center for Computational Astrophysics, New York, October, 2017
15. Astronomy Seminar, Virginia Tech, Department of Physics, VA, October, 2017

14. UVa/NRAO Colloquium, Charlottesville, VA, September, 2017
13. Galaxy Lunch, Department of Astronomy, Yale University, New Haven, CT, March, 2017
12. Astro Lunch, Department of Physics, University of California, Santa Barbara, January, 2017
11. Colloquium, Institute for Astronomy, University of Hawaii, HI, November, 2016
10. Theory Lunch, The University of Virginia, Department of Astronomy, VA, November, 2016
9. CTC seminar, University of Maryland, Department of Astronomy, MD, October, 2016
8. Theory Lunch, The University of Virginia, Department of Astronomy, October, 2016
7. Colloquium, University of Florida, Astronomy Department, FL, September, 2016
6. Seminar, Columbia University, Department of Astronomy, New York, September, 2016
5. Astroplasma Seminar, Department of Astrophysical Sciences, Princeton University, July, 2016
4. Astronomy Seminar, Virginia Tech, Department of Physics, April, 2016
3. Theory Lunch, The University of Virginia, Department of Astronomy, Oct, 2015
2. TUNA Lunch, National Radio Astronomy Observatory, VA, September, 2015
1. Summer Seminar, The Ohio State University, CCAPP, July, 2014

CONTRIBUTED TALKS

12. 2018 National Society of Black Physicists Conference, Columbus, Ohio, November, 2018
11. 2nd Young Scientist Frontier Forum at Nanjing University, Jiangsu, China, May, 2018
10. 231st AAS Meeting, Washington DC, January, 2018
9. AGN Winds Conference on the Georgia Coast, Jekyll Island Club Hotel, GA, June, 2017
8. The 83rd Annual Meeting of the Southeastern Section of the American Physical Society (SESAPS), Charlottesville, VA, November, 2016
7. The University of Virginia Postdoctoral Research Symposium, September, 2016
6. MODEST-16 Conference, Gas and Gravitational Dynamics, American Museum of Natural History, New York, September, 2016
5. Dissertation Talk: *Hot Galactic Winds Constrained by the X-ray Luminosities of Galaxies and Ram Pressure Acceleration of Cool Clouds*, 225th AAS Meeting, Seattle, WA, Jan, 2015
4. The GRB Conference, Kyoto, Japan, April, 2010
3. 2008 Chinese Astronomy and Astrophysics Meeting, Qingdao, China, August, 2008
2. The International GRB Conference, Nanjing, China, June, 2008
1. 2007 Chinese Astronomy and Astrophysics Meeting, Guangzhou, China, November,2007

TEACHING EXPERIENCE

- TA for Astronomy 1142: *Black Holes*, the Ohio State University, Spring 2014, Instructor: Professor Paul Martini
- TA for Astronomy 162: *Introduction to Stars, Galaxies and the Cosmology*, the Ohio State University, Winter 2012, Winter 2011, Instructor: Professor David Ennis; Winter 2011, Instructor: Professor Todd Thompson
- TA for Astronomy 161: *Introduction to Solar System Astronomy*, the Ohio State University, Autumn 2010, Instructor: Professor David Ennis; Autumn 2010, Instructor: Professor Jennifer Johnson

OUTREACH

July 2018:	Public Talk, McCormick Observatory, University of Virginia, Charlottesville, VA
July 2017:	Public Talk, McCormick Observatory, University of Virginia, Charlottesville, VA
Nov 2016:	Public Talk, Fan Mountain Observatory, Covesville, VA
Sept 2016:	Abstract Judges for the Postdoctoral Research Symposium at UVa
June 2016:	Public Talk, McCormick Observatory, University of Virginia, Charlottesville, VA
April 2016:	Public Talk, Fan Mountain Observatory, Covesville, VA
Jan 2016:	Juror of 9th United States Invitational Young Physicists Tournament, Lynchburg, VA

PROFESSIONAL SKILLS

- programming languages: C, C++, Fortran, Python
- data reduction and visualization: Python, yt, IDL, VisIt, MATLAB, OriginLab
- numerical simulation codes: ATHENA, ATHENA++
- parallel computing with MPI and OpenMP

COLLABORATORS *(alphabetical):*

Roger Chevalier (U. of Virginia), Zi-Gao Dai (Nanjing Univeristy), Shane Davis (U. of Virginia), Yan-Fei Jiang (UC Santa Barbara), Norman Murray (CITA), Eliot Quataert (UC Berkeley), Mateusz Ruszkowski (UMich), Krzysztof Stanek (Ohio State), James Stone (Princeton), Todd A. Thompson (Ohio State)

PhD thesis advisor: Todd A. Thompson (Ohio State)

Postdoctoral advisor: Shane Davis (U. of Virginia), Mateusz Ruszkowski (U. of Michigan)